

This electronic thesis or dissertation has been downloaded from the King's Research Portal at <https://kclpure.kcl.ac.uk/portal/>



Valuation Approaches in Investment Arbitration: An Analytical and Comparative Study

Stan, Grigore-Octav

Awarding institution:
King's College London

The copyright of this thesis rests with the author and no quotation from it or information derived from it may be published without proper acknowledgement.

END USER LICENCE AGREEMENT



Unless another licence is stated on the immediately following page this work is licensed

under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International

licence. <https://creativecommons.org/licenses/by-nc-nd/4.0/>

You are free to copy, distribute and transmit the work

Under the following conditions:

- Attribution: You must attribute the work in the manner specified by the author (but not in any way that suggests that they endorse you or your use of the work).
- Non Commercial: You may not use this work for commercial purposes.
- No Derivative Works - You may not alter, transform, or build upon this work.

Any of these conditions can be waived if you receive permission from the author. Your fair dealings and other rights are in no way affected by the above.

Take down policy

If you believe that this document breaches copyright please contact librarypure@kcl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

Valuation Approaches in Investment Arbitration
– An Analytical and Comparative Study –

Thesis Submitted to King's College London
For the Academic Degree of Doctor of Philosophy (PhD)

Candidate: Grigore-Octav Stan (Student No. 0847948)

Supervising Professor: Dr. Federico Ortino

King's College London, Dickson Poon School of Law

Abstract

The rapid development of investment arbitration, especially during the last two decades, has been followed by extensive academic research and scholarly writings in this field. However, these have focused mainly on the legal documents that allow investment arbitration, grounds for the claims brought before investment tribunals, jurisdiction of arbitral tribunals, remedies available to foreign investors, and other similar topics. The calculation of the applicable monetary compensation payable to investors and the assessment of the value of investments have not received extensive attention in such writings even though the main point of interest for the parties involved in investment arbitration usually consists in how much they can gain (in the case of investors) or how much they can lose (in the case of host states) as a result of the arbitration.

As the monetary compensation payable to investors as an outcome of investment arbitrations is directly linked to the value of the investments that are negatively affected by host states, the assessment of the value of investments at the centre of arbitral disputes is important for both investors and host states. Given its importance, the present research examines the valuation approaches and methods which may be employed in investment arbitration in order to assess the value of investments.

The thesis focuses on the main approaches for the valuation of investments at the centre of disputes (namely the market based, the income based and the asset based valuation approaches); the corresponding valuation methods through which such approaches are implemented; and the basis for their application. The research includes a comparative analysis of the existing valuation instruments. This shows why certain approaches may be used to assess the value of investments in particular arbitration circumstances while others may not. Also, the research points out the importance of correctly correlating the application of the valuation instruments to the context of each investment dispute by reference to at least the type of investment involved, the category of available evidence, and the type of damage incurred by investors.

The research uncovers the main advantages and disadvantages of the valuation instruments used in investment disputes. This indicates that the valuation instruments

demonstrate a mutual superiority, and also that no complete valuation instrument currently exists. The thesis concludes that the current practice of arbitration tribunals in relation to valuation matters can be improved from several perspectives (i.e. from regulatory, administrative, judicial and theoretical perspectives), and formulates suggestions in this respect.

TABLE OF CONTENTS

1.	INTRODUCTION.....	9
1.1	General Context	9
1.2	Gaps to be Covered in Relation to Valuation Aspects in Investment Disputes	11
1.3	Thesis Statement	13
1.4	Research Methods	15
1.5	Structure of the Thesis	17
2.	THE ASSET BASED APPROACH FOR THE VALUATION OF INVESTMENTS IN ARBITRAL DISPUTES	23
2.1	Invested Amounts (or Sunk Costs) Method	25
2.1.1	Concept	25
2.1.2	Recognition and Application in Investment Arbitration	27
2.1.2.1	Early Cases	27
2.1.2.2	Subsequent Developments Indicating Relevant Types of Costs and Sources of Invested Amounts	31
2.1.2.3	Application Mechanism	34
2.1.2.4	Adjustment of Invested Amounts by Arbitral Tribunals	37
2.2	Book Value Method	40
2.2.1	Concept	40
2.2.2	Application Mechanism	42
2.2.2.1	Calculating the Total Value of Assets	42
2.2.2.2	Application of Depreciation, Depletion or Amortisation Factors	44
2.2.2.3	Subtraction of Liabilities	46
2.2.3	Recognition and Application in Investment Arbitration	48
2.2.3.1	Application for the Valuation of Entire Investments	48
2.2.3.2	Application for the Valuation of Separate Assets within Investments	50
2.2.4	Adjusted Book Value Method – Particular Application of the Book Value Method	52
2.2.4.1	Concept	52
2.2.4.2	Adjustments	52
2.2.4.3	Application	53
2.2.4.4	Distinction between Adjusted Book Value (ABV) and Adjusted Present Value (APV)	54
2.3	Replacement Value Method	55
2.3.1	Concept	55
2.3.2	Recognition and Application in Investment Arbitration	57
2.3.2.1	Early Application: the Corfu Channel Case	57
2.3.2.2	The ‘Old-for-New’ Standard: Practice of the Iran-US Claims Tribunal	58

2.3.2.3	The ‘Old-for-Old’ / ‘New-for New’ Standard of the United Nations Compensation Commission.....	59
2.3.2.4	ICSID Practice.....	60
2.4	Liquidation Value Method.....	62
2.4.1	Concept.....	62
2.4.2	Recognition and Application in Investment Arbitration.....	65
2.4.2.1	Recognition in Principle and Actual Application.....	65
2.4.2.2	Particular Application in Cases of Indirect and Partial Expropriation.....	69
3.	THE MARKET BASED APPROACH FOR THE VALUATION OF INVESTMENTS IN ARBITRAL DISPUTES	71
3.1	The Concept of Market Value.....	71
3.2	The Concept of Market Based Approach to Valuation.....	74
3.3	Valuation Methods Pertaining to the Market Based Approach.....	75
3.3.1	The Share Prices Method.....	76
3.3.1.1	Share Prices Method in Case of Companies Listed on the Stock Exchange	76
	(i) Acceptance in Principle.....	77
	(ii) Actual Application	78
3.3.1.2	Share Prices Method in Case of Private Companies.....	81
	(i) Share Prices Method Applied based on Prior Transactions Involving Shares of Private Companies.....	82
	(ii) Share Prices Method Applied based on Data regarding Similar Public Companies – the Guideline Public Company Method.....	85
	(iii) Other Circumstances Indicating Share Prices and Value of Investments.....	89
3.3.2	Comparable Sales Method	91
3.3.2.1	Application Requirements.....	92
	(i) Similarity between the Investment at the Centre of the Dispute and the Comparables	93
	(ii) Temporal Proximity between the Valuation Date and the Transactions involving the Comparables	95
	(iii) Geographic Proximity between the Investment at the Centre of the Dispute and the Comparables.....	97
3.3.2.2	Number of Comparables.....	98
3.3.3	Partial Sales Method.....	100
3.3.4	Economic Multipliers Method: EBITDA and EBIT	102
3.3.4.1	EBITDA.....	102
	(i) Mechanism	102
	(ii) Endorsement in Investment Arbitration	103
3.3.4.2	EBIT	105
3.3.5	Purchase Offers Method.....	106
3.4	Elements Operationalizing the Market Based Approach to Valuation	107
3.4.1	Estimated Amount for which the Investment should Exchange	108
3.4.1.1	The Relationship between the Type of Investment and the Estimated Amount.....	109

3.4.1.2	The Impact of ‘Equitable Considerations’ and Tribunals’ Discretion when Assessing the Estimated Amount	110
3.4.2	Certain Date.....	114
3.4.3	Willing Buyer and Willing Seller.....	116
3.4.4	Arm’s Length Transaction.....	117
3.4.4.1	The Distinction from Related Parties Transactions	118
3.4.4.2	The Distinction from Strategic Transactions	120
3.4.5	Parties Acting Knowledgeable and Without Compulsion.....	122
4.	THE INCOME BASED APPROACH FOR THE VALUATION OF INVESTMENTS IN ARBITRAL DISPUTES	124
4.1	The Discounted Cash Flow (‘DCF’) Method.....	126
4.1.1	The concept of DCF – Background and Application in Investment Arbitration.....	126
4.1.1.1	Origin and Underlying Principles.....	126
4.1.1.2	Acceptance in Investment Arbitration	129
4.1.2	Aspects Relevant for the Application of the DCF Valuation Method.....	131
4.1.2.1	Timeframe Relevant for Establishing Future Cash Flows.....	132
4.1.2.2	Indicators Used to Assess Future Cash Flows to be Generated by Investments.....	136
(i)	The Investments’ Track Records.....	136
(ii)	Agreements Secured by Investments	140
(a)	Agreements with Extension or Renewal Provisions	143
(b)	Agreements with Renegotiation or Adjustment Mechanisms.....	145
(iii)	Business Plans and Forecasts.....	149
(iv)	Economic and Political Conditions from the Host Country	153
4.1.2.3	Discounting Mechanisms and Discount Rates.....	155
(i)	Risk and its Influence on the Discount Rates.....	156
(ii)	Instruments Used to Reflect Risk in the Discount Rate.....	161
(a)	The Weighted Average Cost of Capital	161
(b)	The ‘Build-up’ Procedure	164
(iii)	Examples of Discount Rates Applied by Arbitral Tribunals	168
4.1.2.4	The Investments’ ‘Terminal Value’ or ‘Continuing Value’	171
4.1.3	Field of Application of the DCF Method: Going Concern Investments and Other Specific Cases	174
4.1.3.1	Application of the DCF Method in case of Going Concern Investments	174
4.1.3.1.1.	Framework	174
4.1.3.1.2.	The Concept of ‘Going Concern’	175
4.1.3.1.3.	Track Record of Operations	180
(i)	General Application: Cases Involving a Sufficient Track Record Prior to the Valuation Date	180
(ii)	Exceptions: Application of the DCF Method to Investments with an Insufficient Track Record (Application Attributable to the Parties’ Preference towards DCF, or to Start-up Investments Benefitting from Long-term Agreements)	182

(a) The Parties' Common Preference towards DCF	183
(b) Situation of Start-up Investments Benefitting from Long-term Agreements	184
4.1.3.1.4. Ability to Produce Revenues in the Future. Past Profitability as an Indicator	188
4.1.3.2 Application of the DCF Method in case of Investments in Financial Difficulty	191
4.2 Other Income Based Valuation Methods	192
4.2.1 Adjusted Present Value Method	193
4.2.2 Capitalized Cash Flow (or Capitalization of Earnings) Method	195
5. COMPARATIVE ANALYSIS OF APPROACHES USED FOR THE VALUATION OF INVESTMENTS IN ARBITRAL DISPUTES.....	199
5.1 First Perspective for Comparison: Types of Investments to Which Valuation Approaches Apply in Investment Arbitration	201
5.1.1 Commercial Enterprises	202
5.1.1.1 Start-up Investments	202
(i) The Asset Based Approach	203
(ii) The Market Based Approach	205
(iii) The Income Based Approach	206
(iv) Summary	209
5.1.1.2 Going Concern Investments	210
(i) The Asset Based Approach	210
(ii) The Market Based Approach	213
(iii) The Income Based Approach	215
(iv) Summary	219
5.1.1.3 Investments in Financial Distress	219
(i) The Asset Based Approach	220
(ii) The Market Based Approach	222
(iii) The Income Based Approach	224
(iv) Summary	227
5.1.2 Separate Assets	228
(i) The Asset Based Approach	228
(ii) The Market Based Approach	230
(iii) The Income Based Approach	231
(iv) Summary	234
5.1.3 Contracts	234
(i) The Asset Based Approach	236
(ii) The Market Based Approach	237
(iii) The Income Based Approach	239
(iv) Summary	240
5.2 Second Perspective for Comparison: Type of Evidence Used to Implement the Valuation Approaches	241
5.2.1 Financial Statements	243

5.2.1.1	Overview	243
5.2.1.2	Compatibility of Financial Statements with the Application of Particular Valuation Approaches	247
5.2.1.3	Summary.....	253
5.2.2	Business Plans.....	254
5.2.2.1	Overview	254
5.2.2.2	Compatibility of Business Plans with the Application of Particular Valuation Approaches	255
5.2.2.3	Summary.....	258
5.2.3	Evidence of Previous Transactions	259
5.2.3.1	Overview	259
5.2.3.2	Compatibility between Evidence of Previous Transactions and Application of Particular Valuation Approaches.....	259
5.2.3.3	Summary.....	262
5.3	Third Perspective for Comparison: Types of Damages to Which Valuation Approaches May Apply	262
5.3.1	Loss Suffered (' <i>damnum emergens</i> ')	264
	(i) The Asset Based Approach	265
	(ii) The Market Based Approach.....	266
	(iii) The Income Based Approach.....	267
5.3.2	Loss of Profits (' <i>lucrum cessans</i> ').....	267
	(i) The Asset Based Approach	269
	(ii) The Market Based Approach.....	269
	(iii) The Income Based Approach.....	270
5.3.3	Summary	271
6.	CONCLUSIONS – Advantages and Disadvantages of Valuation Approaches, Mutual Superiority of Valuation Approaches, and Future Options.....	272
6.1	Main Advantages and Disadvantages of Valuation Approaches in Investment Arbitration....	272
6.1.1	Advantages and Disadvantages of the Asset Based Approach in Investment Arbitration	272
6.1.2	Advantages and Disadvantages of the Market Based Approach in Investment Arbitration	275
6.1.3	Advantages and Disadvantages of the Income Based Approach in Investment Arbitration	277
6.2	Relationship between Valuation Approaches	280
6.3	Future Options for Possible Improvement of Valuation Aspects in Investor-State Disputes	282
7.	BIBLIOGRAPHY	287

1. INTRODUCTION

1.1 General Context

Over the last two decades, the number and value of disputes brought by foreign investors against states where their investments¹ are located has increased considerably. The expansion of investor-state disputes can be explained by three main factors. The first one consists in the multiplication, by tens of times, of the level of foreign direct investment (FDI): where in the 1980s the annual FDI outflows averaged approximately US\$ 100 billion, during 2007-2011 the annual FDI outflows averaged approximately US\$ 1.7 trillion.² In addition to the FDI outflows from the large industrialised Western economies, such as the US, the UK and Germany, the growing FDI outflows from emerging economies, such as China, India and Russia have also contributed significantly to the increase in the global volume of foreign investments.³ Secondly, the array of legal instruments allowing private investors to pursue legal claims against host states has developed substantially. Currently, investors can rely on over 2,500 bilateral

¹ The term ‘investment’ is used with the meaning conferred to it by Article 25 (1) of the ICSID Convention, as explained in ICSID jurisprudence, including in the *Salini* case (*Salini Costruttori S.p.A. and Italstrade S.p.A. v. Kingdom of Morocco*, ICSID Case No. ARB/00/4) and *Joy Mining case* (*Joy Mining Machinery Limited v. Arab Republic of Egypt*, ICSID Case No. ARB/03/11). For ease of reference, the arbitral tribunal in *Joy Mining* case stated that ‘*summarizing the elements that an activity must have in order to qualify as an investment, both the ICSID decisions mentioned above and the commentators thereon have indicated that the project in question should have a certain duration, a regularity of profit and return, an element of risk, a substantial commitment and that it should constitute a significant contribution to the host State’s economy*’ (*Joy Mining Machinery Limited v. Arab Republic of Egypt*, ICSID Case No. ARB/03/11, award on Jurisdiction, 6 August 2004, para. 53).

² See Karl Sauvant, Federico Ortino, *Improving the international investment law and policy regime: Options for the future*, Background report for the Seminar on Improving the International Investment Regime, Helsinki, 2013, available at <http://formin.finland.fi/public/download.aspx?ID=113259&GUID=%7B1202781B-0D9B-4E9C-9621-FCA4DA87881E%7D>. See also UNCTAD’s World Investment Reports available at <http://unctad.org/en/pages/DIAE/World%20Investment%20Report/WIR-Series.aspx>, accessed on 7 November 2014.

³ For details regarding the increase of FDI from the emerging economies of Brazil, Russia, China and India, please refer to David Collins, *The BRIC States and Outward Foreign Direct Investment* (Oxford University Press, 2013), p. 1 *et seq.* and 214 *et seq.*

investment treaties;⁴ several international trade treaties (such as the North American Free Trade Agreement); and other international investment agreements (such as the Energy Charter Treaty).⁵ The third factor concerns the setting-up of specialised arbitral tribunals for the settlement of investor-state disputes which offer investors who have been negatively affected by host states' actions the legal setting to pursue claims directly against such host states.

Undisputedly, the main arbitration institution for the settlement of investor-state disputes is the International Centre for Settlement of Investment Disputes (ICSID) of the World Bank. As an illustration of the importance of ICSID, as well as of the trend of significant growth of investor-state disputes, the ICSID related statistics indicate that, while only 5 cases were registered before ICSID up until 1974, ICSID has registered 497 cases under the ICSID Convention and Additional Facility Rules at 31 December 2014.⁶ Out of this total number, 50 new cases were registered with ICSID in 2012, 40 new cases in 2013, and 38 new cases in 2014.

The large number of investor-state disputes, related legal instruments and dispute settlement institutions indicate the increasing significance of investment disputes in the international legal and economic arena. This importance is also reflected in the legal writings over the last ten to fifteen years in relation to investor-state disputes – which have analysed multiple matters of relevance in the context of such disputes. The primary focus of the writings of legal authors (i.e. the *legal doctrine*⁷) in this field has been on the setting-up and functioning of dispute

⁴ Rudolf Dolzer, Christoph Schreuer, *Principles of International Investment Law* (Oxford University Press, 2008), p. 2.

⁵ For an analysis of the main issues regarding the investment treaty system, please refer to Federico Ortino, Hugo Warner, Audley Sheppard (Editors), *Investment Treaty Law: Current Issues* (British Institute of International and Comparative Law, 2005).

⁶ The ICSID Caseload – Statistics, available at [https://icsid.worldbank.org/apps/ICSIDWEB/resources/Documents/ICSID%20Web%20Stats%202015-1%20\(English\)%20\(2\)_Redacted.pdf](https://icsid.worldbank.org/apps/ICSIDWEB/resources/Documents/ICSID%20Web%20Stats%202015-1%20(English)%20(2)_Redacted.pdf), p. 7, accessed on 2 March 2015.

⁷ The scholarly writings of legal authors on topics regarding valuation matters involved in investment arbitration are also collectively referred to herein as the 'legal doctrine', and, in some circumstances, the 'doctrine'. For further details regarding the 'legal doctrine', please refer to French authors Serge Guinchard, Gabriel Montagnier, *The Entity of French Doctrine: Some*

settlement institutions; choice of forum; appointment of arbitrators; procedural rules to be observed for commencing and carrying out legal disputes; and enforcement of arbitration awards issued as a result of investor-state disputes.⁸ However, to a great extent – and with only very few exceptions which will be detailed below – the legal writings have not focused on questions regarding the manner in which arbitral tribunals establish the value of investments affected by host states and, consequently, the amount of compensation payable by host states to investors as a result of their negative interference with the respective investments.

1.2 Gaps to be Covered in Relation to Valuation Aspects in Investment Disputes

The fact that the legal authors have not concentrated on valuation mechanisms that are available to arbitral tribunals for the purposes of establishing investment value and compensation in investor-state disputes is to some extent a paradox. This is because the main motivation of investors who pursue arbitration against host states lies primarily in the financial benefits which they can obtain as a result of an arbitral dispute. It would be of no interest for the parties involved in investor-state disputes to apply, get to know and concern themselves with legal issues related to jurisdiction, arbitration proceedings, enforcement etc. unless the aspects regarding the valuation of investments at the centre of the respective disputes were also known at the same time and at least to the same extent as other substantive or procedural investment law issues.

However, when the current research was started (in 2008), no legal monographs or similar writings existed on the assessment of the value of investments involved in investor-state disputes. The main texts regarding this issue were

Thoughts on the Community of French Legal Writers, Legal Studies Journal (1998), Volume 18, No. 4, pp. 414-437. For the avoidance of doubt, the term ‘legal doctrine’ is not used to designate the philosophy behind various legal concepts.

⁸ See, for instance, Christoph Schreuer, *The ICSID Convention: A Commentary: a Commentary on the Convention on the Settlement of Investment Disputes between States and Nationals of Other States* (Cambridge University Press, 2001).

limited to articles and, in some cases, book chapters which examined more general compensation principles and mechanisms. This changed when legal authors Irmgard Marboe,⁹ Sergey Ripinsky and Kevin Williams¹⁰ published monographs on valuation related subjects in investor-state disputes, and when Mark Kantor¹¹ analysed valuation matters in the context of arbitration in general. Subsequently, a handful of other authors, such as Borzu Sabahi,¹² also touched upon issues of valuation in the context of investment disputes. The publishing of the *Journal of Damages in International Arbitration* under the coordination of editors John Gotanda¹³ and Richard Walck¹⁴ is also noteworthy in this context. Notwithstanding the above, the existing legal writings on the assessment of the value of investments in investor-state disputes remain limited.

Directly connected with the limited doctrine, several legal topics concerning the assessment of the value of investments in investor-state disputes have not been analysed at all in the existing legal writings, while at the same time a great number of legal issues on this topic have been regarded only marginally. One of the gaps in the existing legal doctrine relates to the comparative analysis of valuation approaches currently available in investment arbitration (i.e., the asset based, market based and income based valuation approaches). Further, one of the aspects which require a more detailed analysis consists of the valuation methods pertaining to each of the main valuation approaches. The purpose of the thesis and the research questions relate specifically to the abovementioned gaps in the

⁹ Irmgard Marboe, *Calculation of Compensation and Damages in International Investment Law* (Oxford International Arbitration Series, August 2009).

¹⁰ Sergey Ripinsky, Kevin Williams, *Damages in International Investment Law* (British Institute of International and Comparative Law, November 2008).

¹¹ Mark Kantor, *Valuation for Arbitration* (Kluwer Law International, 2008).

¹² Borzu Sabahi, *Compensation and Restitution in Investor-State Arbitration: Principles and Practice* (Oxford International Economic Law, 2011).

¹³ Please also refer to John Gotanda, *Assessing Damages in International Commercial Arbitration: A Comparison with Investment Treaty Disputes*, in *Investment Treaty Law: Current Issues III* 75 (A. Bjorkland, I. Laird, and S. Ripinsky, eds., British Institute of International and Comparative Law, 2009).

¹⁴ Richard Walck provided expert services on valuation issues in several arbitration and litigation cases. For further details, please refer to www.gfa-llc.com.

existing legal doctrine and how they can be covered, as well as how the present investment arbitration practice on valuation and quantum related issues can be improved as a result of carrying out an analytical and comparative study of valuation instruments used in investment arbitration.

1.3 Thesis Statement

The underlying thesis of this work is that although three valuation approaches exist (i.e. the asset based, market based and income based valuation approaches) and multiple valuation methods¹⁵ pertaining to such approaches are available in investment disputes, all such valuation instruments have advantages and disadvantages. No valuation instrument currently available can be regarded as a perfect tool for the assessment of the value of investments in all situations that arise in investment disputes. Instead, the valuation approaches are in a relationship of mutual superiority¹⁶ because all of them may be applicable in some arbitration cases and contexts and inapplicable in others.

This has two important consequences. Firstly, in order to accurately assess the value of investments and appropriately apply the existing valuation instruments, arbitrators have the crucial task of selecting the valuation instruments to be applied in each dispute and of correlating the (imperfect) available valuation instruments to the context of each dispute. As a result, in order to be correctly applied in the context of each investment arbitration dispute, the valuation instruments need to be analysed individually and comparatively in order to identify which valuation instrument corresponds better to the arbitration context. In view of such comparative analysis, the thesis uses evaluative concepts such as ‘effectiveness’, ‘appropriateness’, ‘accuracy’ and ‘correctness’ in connection with the process of applying a valuation approach to a particular

¹⁵ A valuation method is the actual instrument through which a valuation approach is applied in order to assess the value of investments.

¹⁶ The concept of ‘mutual superiority’ was, initially, used in gender and theological studies (see for instance Jacob Allee, *What About Gender Roles and Equality in Genesis 1-3*, available at <https://carm.org/about-gender-roles-equality-genesis>, accessed on 10 July 2014).

investment (or type of investment) in investor-state disputes. In order to ensure clarity on these terms, we note that effectiveness regards the capacity of a valuation approach to actually achieve the calculation of the value of an investment based on the information available to the arbitral tribunal and to the valuation experts involved.¹⁷ Appropriateness refers to the correlation to be made between a valuation approach (on one hand) and the features of the investment subject to assessment and the circumstances of each investment dispute (on the other hand). Accuracy refers to the possibility of a valuation instrument to assess the value of an investment with maximum precision and with a small margin of error. Correctness considers the application of the valuation instruments for the assessment of the value of investments with the due observance of the generally acceptable valuation rules and practices, as indicated by valuation bodies and arbitral tribunals.

The second important consequence regards the fact that, in order to avoid subjectivity or arbitrary aspects when selecting the valuation approach to be used in investment arbitrations, specific valuation related guidelines for investment disputes must be elaborated and implemented.

The present thesis provides such analysis of valuation approaches – regarded both individually and in a comparative manner – and also serves as a plea and starting point for the elaboration of valuation related guidelines to be enacted and applied in investment disputes. To this end, the research reviews and assesses several topics which have not been analysed at all until now or which have been only insufficiently examined by the existing legal doctrine.¹⁸

¹⁷ As detailed in Chapter 5 of the thesis, the effectiveness and accuracy related to the actual application of valuation approaches for the assessment of the value of investments can be impacted, in investment disputes, by the type of evidence made available to the tribunals, as well as by the ‘human factors’ involved (e.g. advocacy skills of the legal counsels, credibility of the valuation experts, weighting of evidence by the members of the tribunals etc.).

¹⁸ The research is limited to addressing the matters specifically mentioned, and does not focus on any other aspects such as analysis of investments encountered in ICSID proceedings, compensation, damages, evidence and administration thereof, types of losses suffered by investors, expropriation etc.

1.4 Research Methods

Because the research topic focuses on *how* valuation approaches are applied in investment arbitration and on *why* some approaches and methods are preferable over others in certain investment disputes, the present research was carried out using qualitative research methods. In view of the nature of the research topic, no quantitative research was possible (e.g., by way of questionnaires), and for this reason the thesis does not include numerical, statistical or mathematical conclusions nor tables or illustrations with the results of the research.

The qualitative research methods used for the present thesis are (i) scrutiny of relevant legal and economic sources relevant for the research questions; (ii) data collection and selection; and (iii) analysis and interpretation of selected data,¹⁹ including by way of a comparative analysis of valuation approaches used in investment arbitration.

The scrutiny of relevant legal and economic sources focuses on the writings of a number of legal authors, such as Irmgard Marboe, Sergey Ripinsky and Kevin Williams, Mark Kantor and Borzu Sabahi,²⁰ as well as of economists and business valuation experts, such as Shannon Pratt,²¹ Eugene Brigham, Phillip Daves²² and James Hitchner²³. The writings of legal authors with regard to the application of valuation approaches in investment arbitration were, and still are, limited in number. This indicates, among others, that there is a need for extensive research in this field.

¹⁹ Donatella Della Porta, Michael Keating (editors), *Approaches and Methodologies in the Social Sciences* (Cambridge University Press, 2008).

²⁰ Supra 9-12.

²¹ Laro, David; Shannon P. Pratt, *Business valuation and taxes: procedure, law, and perspective* (John Wiley & Sons, 2005); Pratt, Shannon; Alina Niculita, *Valuing a business: the analysis and appraisal of closely held companies* (McGraw-Hill, 2008).

²² Brigham, Eugene F.; Phillip R. Daves, *Intermediate Financial Management* (10th Edition, Cengage Learning, 2010).

²³ Hitchner, James R., *Financial Valuation, Applications and Models*, (3rd Edition, John Wiley & Sons, 2011).

In addition to the review of the scholarly writings, the thesis includes the scrutiny of relevant case-law involves the review of arbitration awards issued in ICSID arbitrations;²⁴ in arbitrations pursued under other arbitration rules (such as UNCITRAL²⁵ and NAFTA²⁶); as well as judgments of the International Court of Justice and decisions issued by national courts (mainly US courts). Approximately 250 arbitral awards and court decisions have been scrutinised for the purposes of this research, and only the ones relevant for these purposes are quoted or referred to herein (some of them in several chapters, where relevant).²⁷

Also, the research reviews the relevant types of legal sources of international investment law,²⁸ namely: (i) international sources, such as the ICSID Convention,²⁹ NAFTA, UNCITRAL and the United Nations Convention on Contracts for the International Sale of Goods, the International Law Commission's Draft Articles on Responsibility of States for Internationally Wrongful Acts, the UNIDROIT Principles of International Commercial Contracts and the World Bank Guidelines on the Treatment of Foreign Direct Investment, (ii) bilateral investment treaties, and (iii) domestic (national) legal sources with impact on and relevance in the practice of international tribunals. When the case, the thesis points out the relationship of cross-fertilization between the international and domestic legal sources as regards valuation matters – for instance, in Chapter 3, Section 3.1 below, the concept of market value is analysed by reference to both national legislations (such as the legislations of UK, US, Canada, India) and international sources.

²⁴ The majority of arbitral awards issued in ICSID cases are available online at <https://icsid.worldbank.org/> and <http://www.italaw.com/>.

²⁵ United Nations Commission on International Trade Law.

²⁶ The North American Free Trade Agreement.

²⁷ For the avoidance of doubt, not all investment arbitration cases have been reviewed during the present research, as the aim of the thesis is not to map all investment arbitration cases, but to assess how the valuation approaches apply in investment arbitration context and practice.

²⁸ For details, please refer to Jeswald W. Salacuse, *The Three Laws of International Investment: National, Contractual, and International Frameworks for Foreign Capital* (Oxford University Press, 2014), p. 35 et. seq.

²⁹ Convention on the Settlement of Investment Disputes between States and Nationals of Other States.

The review of the abovementioned legal sources is complemented by the analysis, throughout the thesis, of economic and valuation instruments issued by international bodies, such as the International Valuation Standards (in multiple editions (IVS)³⁰ adopted by the International Valuation Standards Committee) and the International Financial Reporting Standards (IFRS).³¹

The process of data collection and selection was carried out in parallel with the assessment of the doctrine and case-law in view of the research questions. The analysis and interpretation of selected data naturally led to the drafting the content of the thesis. The chapters regarding the features and functioning of valuation approaches in the context of investment disputes (i.e. chapters 2 to 4) were drafted first. These were followed by the comparative analysis of valuation approaches (i.e. chapter 5) and the Conclusions of the thesis (i.e. chapter 6).³² For all parts of the thesis, at least two or three versions were drafted and discussed with the supervising professor prior to being given their current form in order to reflect the relevant doctrine and case-law as well as any developments relevant for the research.

1.5 Structure of the Thesis

In addition to the Introduction (numbered 1 in the table of contents), the thesis includes (a) chapters 2 to 4, which are aimed at reviewing analytically the valuation approaches used in investment arbitration; (b) chapter 5, which is aimed at assessing, in a comparative manner, the valuation approaches; and (c)

³⁰ Mainly the latest edition of IVS is quoted herein (*i.e.*, IVS published in 2013 and entered into effect on 1 January 2014, also referred to as IVS 2013), complemented in certain instances by references to previous editions (usually the 8th edition of the IVS, published in 2007, also referred to as IVS 2007). Information from previous editions of IVS is included herein where relevant and indicated in the footnotes. For instance, in case of valuation concepts which have been used in investment arbitration cases but which are not mentioned in the latest edition of the IVS, the research also includes references to previous IVS editions that explained the respective concepts.

³¹ <http://www.ifrs.org/Pages/default.aspx>.

³² The academic limitations set forth by King's College London as regards the maximum word count of the thesis (100,000 words including footnotes, but excluding appendices and bibliography) also had an impact on the final version, in the sense that only the information strictly necessary to demonstrate a fact or support an opinion have been included in the final version of the thesis.

the Conclusions (numbered 6 in the table of contents), which include both a summary of the main matters previously analysed throughout the thesis and recommendations for the improvement of the current valuation matters in investment arbitration. An overview of the abovementioned chapters is presented below for ease of reference.

Chapter 2 of the thesis considers the asset based approach to valuation of investments at the centre of arbitral disputes. It includes a general presentation of the asset based approach and a detailed review of the valuation methods pertaining to this approach which may be used in investment arbitration. The methods pertaining to the asset based approach which are under review include (i) the invested amounts (or sunk costs) method; (ii) the book value method (including its sub-species – the adjusted book value method); (iii) the replacement value method; and (iv) the liquidation value method. For each of the valuation methods pertaining to the asset approach, the thesis comprises a presentation of the method, its guiding principles and mechanism. It also scrutinises how the respective method is endorsed and/or applied in investment arbitration.

Chapter 3 analyses the market based approach to valuation of investments at the centre of arbitral disputes. It starts by clarifying the concepts of market based approach to valuation and market value, and then reviews the valuation methods specific to the market based approach. The market based valuation methods under scrutiny are (i) the share prices method; (ii) the comparable sales method; (iii) the economic multipliers method (based on EBITDA³³ and EBIT³⁴); and (iv) the offerings method. The third chapter also includes a review of the elements used to implement or operationalise the market based approach to valuation and which are derived from the fact that a market based valuation reflects, in principle and regardless of the valuation method used, ‘the estimated amount for which an asset or liability should exchange on the valuation date

³³ Earnings Before Interest, Taxes, Depreciation, and Amortization.

³⁴ Earnings Before Interest and Taxes.

between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion'.³⁵

Chapter 4 of the thesis examines the income based approach to valuation of investments at the centre of arbitral disputes and focuses on the main valuation method pertaining to this approach – i.e. the discounted cash flow value (DCF) method. This chapter explains the underlying ideas and mechanisms of the DCF method as well as the requirements for its application in the practice of arbitral tribunals. In addition to the DCF method, the fourth chapter also reviews two other income based methods available for the purposes of establishing the value of an investment at the centre of arbitral disputes, namely (i) the adjusted present value (APV) method and (ii) the capitalized cash flow (CCF) method.

Chapter 5 analyses the valuation approaches in a comparative manner. Even though no legal doctrine exists for the comparative analysis of valuation approaches in the context of investment disputes, the present thesis identifies three perspectives for analysing and comparing valuation approaches, starting from the investment arbitration practice. The first perspective for comparison scrutinises how valuation approaches relate to, and may be applied in case of, different types of investments regularly encountered in the investment arbitration area, such as start-ups, operating enterprises which can be regarded as 'going concerns', investments in financial distress, separate assets used in investments, and investment contracts. This perspective is used to assess if and why some valuation approaches are more suitable than others for assessing the value of investments when a specific type of investment is at the centre of arbitration.

The second perspective for comparison assesses how each of the valuation approaches may be used in investment arbitration proceedings in relation to the available documentary evidence and sources of information regarding the

³⁵ IVS 2013, IVS Framework, para. 30, at <http://standards.ivsonline.org/mod/page/view.php?id=108> (accessed on 11 January 2015).

investments subject to assessment (e.g., financial statements, business plans and evidence of previous transactions involving investments). This perspective is aimed at finding out if and why some valuation approaches are more suitable than others for assessing the value of investments in cases when a specific type of information or document regarding the investment at the centre of the dispute is presented in arbitration proceedings. Finally, the third perspective for comparison relates to the types of damages for which each of the valuation approaches may be used in investment arbitration proceedings.³⁶

The Conclusions of the thesis include both a summary of the main advantages and disadvantages of valuation approaches used in investment arbitration (from chapters 2 to 5) and general concluding remarks regarding the relationship between valuation approaches and the potential improvement of the implementation of such approaches in the practice of arbitral tribunals.

Consequently, the Conclusions are divided into three sub-sections dealing with (i) the advantages and disadvantages of each valuation approach used in investment arbitration; (ii) the relationship between valuation approaches; and (iii) the aspects which could improve the current valuation practice in investment disputes.

In relation to the advantages of each valuation approach used in investment arbitration, the Conclusions summarise the three key positive points and three main shortcomings of each valuation approach as given earlier in the thesis. In terms of the relationship between valuation approaches, the Conclusions detail that, currently, no perfect or complete valuation method exists and, furthermore,

³⁶ On a structure related note, the abovementioned sequence of the chapters of the thesis – which starts with the asset based approach, continues with the market based approach, and afterwards scrutinizes the income based valuation approach – is based on a historic perspective, because the asset based approach (and in particular the straightforward methods pertaining to it, such as the invested amounts method) appears to be the first valuation approach used for the purpose of assessing the value of goods and enterprises at the centre of disputes. At the same time, the income based valuation approach appears to be the most recent valuation approach – for instance, the discounted cash flow method was first articulated during the 1930s, by the economist Irving Fisher in his book ‘The Theory of Interest’ (Macmillan Company, 1930).

that there is no method which can be successfully applied in all circumstances encountered in investment arbitration. The impossibility of a specific valuation approach or method being considered universally applicable in all circumstances that arise in investor-state disputes leads to another finding of the research. Such a finding indicates – on the basis of the comparative analysis included in chapter 5 – that in investment disputes some valuation instruments are better suited than others to the assessment of specific types of investments, and/or for the calculation of the value of investments based on different types of information available to arbitral tribunals with respect to the investments, and/or in the context of different types of damages produced to investments by the host states' actions.

Thus, it can be affirmed that the various valuation methods are in a relationship of *mutual superiority*, as some valuation methods can be used to assess the value of investments in circumstances when other valuation methods prove inefficient, and the same methods which are inefficient in some cases prove useful with respect to other investments, with different features, and/or if the context regarding the investments that are subject to dispute and valuation change.

Due to the mutual superiority of different valuation approaches and methods, the valuation of investments in investor-state disputes also involves a crucial component of arbitral tribunals electing the valuation tools which are appropriate to the investments' specific features and the context of each dispute. In the absence of an appropriate correlation of valuation tools to the investment context, the valuation results and the overall monetary outcome of the arbitration proceedings can be jeopardised.

Despite the importance of the selection of the appropriate valuation approach in each investment arbitration case, currently no formal guidelines are available to arbitrators in this respect. As a result, the Conclusions comprise suggestions for the improvement of the current valuation matters in investment disputes in this respect. The aspects identified in the Conclusions as potential factors which

could contribute to the implementation of a scientific approach to quantum related matters and to the achievement of a more predictable valuation practice in investment arbitration include, among others, the following:

- (a) Elaboration, with the involvement of the International Valuation Standards Committee or other similar valuation bodies, of practical guidelines to be used specifically in investor-state disputes in relation to the selection and application of valuation methods in several contexts by reference to (i) the type of investment involved; (ii) the type of evidence available in connection with the respective investment; and (iii) the type of damage incurred by the investment/investor.
- (b) Enactment, by relevant decision making factors, of specific procedural rules to be applied in the quantum phase of investment arbitration proceedings in order to ensure the observance of the guidelines referred to at point (a) above and the accurate assessment of the value of investments.

2. THE ASSET BASED APPROACH FOR THE VALUATION OF INVESTMENTS IN ARBITRAL DISPUTES

The asset based approach to valuation of investments at the centre of arbitral disputes (also referred to as the cost approach) assesses the value of investments by aggregating the values of assets and liabilities pertaining to the investments subject to valuation. The concept is explained by the IVS 2013, which state that the cost approach ‘provides an indication of value using the economic principle that a buyer will pay no more for an asset than the cost to obtain an asset of equal utility, whether by purchase or by construction’.³⁷ Previous versions of the IVS (*i.e.*, IVS 2007) mention that the asset based approach to valuation is ‘a means of estimating the value of a business and/or equity interest using methods based on the market value of individual business assets less liabilities’.³⁸

The underlying idea behind the asset based approach is the principle of substitution, pursuant to which an investment would worth, to a rational investor, the amount which the investor would be required to spend for the purposes of replacing the assets comprising the investment with other assets of identical or similar quality, features and economic utility. As the amounts required for an investor to replace the assets comprising an investment would actually constitute costs for the investor, the asset based approach has also been referred to as the ‘cost approach’.³⁹ An additional explanation of this alternative term for the approach relates to the fact that the values of the constituent assets of an investment, which are taken into account when assessing the overall investment value, are primarily indicated by the costs of purchasing such assets. In spite of this alternative term, the concept of asset based approach is the one that gained the widest recognition in the investment arbitration doctrine⁴⁰ and case law.⁴¹

³⁷ International Valuation Standards, 1 July 2013, International Valuation Standards Definitions, at <http://standards.ivsonline.org/mod/page/view.php?id=125> (accessed on 5 January 2015).

³⁸ IVS, Eighth Edition, 2007 (Glossary of Terms for International Business Valuation Standards) 336.

³⁹ Marboe, *supra* note 9, at 267.

⁴⁰ Ripinsky, Williams, *supra* note 10, at 218 *et seq.*

The key information required under the asset based approach for the purposes of carrying out investment valuation consists of the costs of assets comprising the investment, or of assets required to replace the investment's constituent parts with equivalent ones, as well as the liabilities associated with the respective investment. Because the asset based approach relies on this type of data – supported by the relevant documentary evidence – the approach is regarded as objective and impartial when compared to other valuation approaches. Unlike the income based approach, which calculates the value of investments based on the expected streams of cash flows to be generated by investments (and such streams are estimated based on assumptions and deductions involving the investments' past performance), the use of assumptions is not usually required under the asset based approach. Similarly, while the market based approach assesses the value of investments based on the price that would be obtained in the hypothetical sale-purchase transaction involving the investment subject to valuation, the asset based approach assesses value based on the actual costs of assets and actual value of liabilities pertaining to an investment, thus reinforcing the idea that the asset based approach is one of the most objective valuation tools.

Due to its relationship with, and reliance on, costs and liabilities pertaining to the investments' constituent assets, the asset based approach can apply successfully particularly in case of investments whose primary purpose is the ownership of assets (such as holding companies used in securities or real estate investments⁴²), in case of start-up investments,⁴³ or for certain businesses which do not qualify as going concerns,⁴⁴ such as businesses in financial distress or liquidation.

The main valuation instruments used for implementation the asset based approach are the following valuation methods: (i) invested amounts method, (ii) book value method

⁴¹ Examples of cases when methods pertaining to the assets based approach were applied may be found in sections 2.1 – 2.4 below. The term 'asset based approach' was mentioned, inter alia, in, in *Siemens A.G. v. The Argentine Republic*, ICSID Case No. ARB/02/8, Decision on Jurisdiction, para. 128.

⁴² Kantor, *supra* note 11, at 12; IVS, International Valuation Guidance Note 6: Business Valuation, IVSC, 2007, 247, para. 5.14.3.4.1.

⁴³ Marboe, *supra* note 9, at 268.

⁴⁴ International Valuation Guidance Note 6: Business Valuation, IVSC, 2007, 247, para. 5.14.3.4.2.

(including its particular application through the adjusted book value method), (iii) replacement value method, and (iv) liquidation value method. The main features of such valuation methods, as well as details of their application and endorsement in investment disputes are presented below.

2.1 Invested Amounts (or Sunk Costs) Method

2.1.1 Concept

As indicated by its name, the invested amounts valuation method is grounded on the value of amounts actually invested by the investor for purposes of setting-up and developing the investment at the centre of the arbitral dispute.⁴⁵ The amounts which have been actually invested are known, alternatively, as ‘sunk costs’,⁴⁶ and for this reason the abovementioned method is also referred to as the sunk cost method. The principle behind such method is that the value of an investment is indicated by the amounts spent by the investor when developing its investment. Thus, under the invested amounts valuation method, an investment’s value may be calculated, in principle, by compounding the values of all expenses actually undertaken by the investor during the process of setting-up and developing the investment.

As regards expenses considered under the invested amounts method, it is relevant that the legal term of ‘invested amounts’ corresponds, from an economic standpoint, to the concept of ‘invested capital’, a financial term referring to the sum of equity and debt in a business enterprise.⁴⁷ Invested capital regards the costs actually incurred by the investor when developing its investment and includes, among others, fixed costs (*i.e.*, costs which do not vary depending on their output, such as costs with plants and equipment⁴⁸),

⁴⁵ Marboe, *supra* note 9, at 278-279.

⁴⁶ Andrew Paul Newcombe, *Regulatory Expropriation, Investment Protection and International Law: When Is Government Regulation Expropriatory and When Should Compensation Be Paid?* (Master’s Degree Thesis), Faculty of Law, University of Toronto, 1999 (available online at <http://italaw.com/documents/RegulatoryExpropriation.pdf>, accessed on 29 January 2015). Also, Kantor, *supra* note 11, at 49 *et seq.*

⁴⁷ Shannon Pratt, Roger Grabowski, *Cost of Capital in Litigation: Applications and Examples* (4th Edition, Wiley, 2010), p. 625. Also, IVS 2007, p. 375.

⁴⁸ Patrick Gaughan, *Measuring Business Interruption Losses and Other Commercial Damages* (2nd Edition, Wiley, 2009), p. 202.

variable costs (*i.e.*, costs which vary with output, such as the workforce and materials⁴⁹), incremental costs (*i.e.*, costs related to a change in business activity⁵⁰), out-of-pocket costs, general and administrative expenses.⁵¹ The abovementioned costs are used for the assessment of the value of investments under the invested amounts method. Nonetheless, while costs which have already been expended by an investor (*i.e.*, sunk costs) are taken into account under the invested amounts method for the purposes of establishing an enterprise's value, the future expenses contracted by the investor but not yet paid fall outside the sphere of costs which could be considered under such method.

Under the invested amounts method, the aggregated costs for the development of an investment indicate the total value of the investment. This triggers the conclusion that the overall investment value is actually the aggregate of costs, aspect which departs from the distinction operated by several valuation instruments (including the IVS) between the concept of 'cost' (which is defined as 'the amount required to acquire or create the asset'⁵²) and the concept of 'value' (which is regarded as 'an opinion of either: (a) the most probable price to be paid for an asset in an exchange, or (b) the economic benefits of owning an asset'⁵³).

Another specific feature of the invested amounts method is that goodwill, market positions, future profits to be generated by the investment subject to valuation, as well as other similar intangibles with income generating capacities, are not taken into account for the purposes of establishing an investment's value. Furthermore, the invested amounts method seems to make no distinction between the status of the amounts invested for the purposes of acquiring the assets which are essential for the purposes of developing the business, and costs incurred when acquiring assets which might generate

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Mark Filler, James DiGabriele, *A Quantitative Approach to Commercial Damages: Applying Statistics to the Measurement of Lost Profits* (Wiley, 2012), p. 6.

⁵² IVS, 2013, IVS Framework, at <http://standards.ivsonline.org/mod/page/view.php?id=108> (accessed on 6 January 2015).

⁵³ Ibid.

lower or no returns on invested capital (as may be the case of most companies whose main business object is not asset ownership).⁵⁴

Although the invested amounts method has been occasionally regarded as a specific application of the book value method⁵⁵ (which is referred to under section 2.2 of this chapter), the main distinction between the two is that, while the invested amounts method is based on the expenses actually incurred for the purposes of developing an investment (at the dates when such expenses were made), the book value method is based on the values under which an investment's assets (net of depreciation, depletion and amortization) are registered in the investment's balance sheets (at the valuation date).⁵⁶ Furthermore, whereas the invested amounts method reflects the cost of goods and services (regardless if such goods and services are registered or not in the investment's balance sheet) at the time of their acquisition, the book value method reflects only the values pertaining to the investment's assets which are registered, as of the valuation date, in the investment's accounting books.

2.1.2 Recognition and Application in Investment Arbitration

2.1.2.1 Early Cases

The legal doctrine and case law indicate that the Factory at Chorzów case⁵⁷ can be considered the primary international case that endorses the invested amounts method as an instrument for investment valuation – and, respectively, reparation – in international investment law cases. In this case, the Permanent Court of International Justice (PCIJ) recognised the compensation related principle pursuant to which, where the restitution in kind is not possible, an acceptable alternative would be the payment, to the affected

⁵⁴ Kent Baker, Gerald Martin, *Capital Structure and Corporate Financing Decisions: Theory, Evidence, and Practice* (Wiley, 2011), p. 340.

⁵⁵ Marboe, *supra* note 9, at. 287. Also, P. D. Friedland and E. Wong, *Measuring Damages for Deprivation of Income-Producing Assets: ICSID Case Studies*, 6 ICSID Rev.-Foreign Investment Law Journal (1991), pp. 400, 405.

⁵⁶ IVS, Eighth Edition, 2007, Guidance Note 6 (*Business Valuation*), para. 3.3.2, p. 228.

⁵⁷ Factory at Chorzów (*Germany v. Poland*), Jurisdiction, Judgment No. 8, 1927, P.C.I.J., Series A, No. 9, Merits, Judgment No. 13, 1928, P.C.I.J., Series A, No. 17.

party, of an amount which would re-establish the ‘situation which would, in all probability, have existed if that act had not been committed’.⁵⁸ The PCIJ stated that:

The essential principle contained in the actual notion of an illegal act – a principle which seems to be established by international practice and in particular by the decisions of arbitral tribunals – is that reparation must, as far as possible, wipe out all the consequences of the illegal act and re-establish the situation which would, in all probability, have existed if that act had not been committed. Restitution in kind, or, if this is not possible, payment of a sum corresponding to the value which a restitution in kind would bear; the award, if need be, of damages for loss sustained which would not be covered by restitution in kind or payment in place of it – such are the principles which should serve to determine the amount of compensation due for an act contrary to international law.⁵⁹

When applied to the specific field of investment arbitration, the above statement may logically lead to the idea that an investor affected by an illegal act of the host state must be placed in the situation which have existed if the state’s interference had not occurred. Nevertheless, when restitution in kind is not possible, the re-establishment of the investor’s situation prior to the illegal act may however become a utopia. As in this case the re-establishment of the prior situation (*i.e.*, the situation in which the investor would continue to hold and operate an unaffected investment) would be impossible, it may be construed that the re-establishment of the situation which the investor would have enjoyed if it had never made its investment is also an acceptable reparation standard. From this perspective, the reimbursement of the costs incurred by the investor in relation to the development of its investment can be regarded as a satisfactory measure of compensation which would reflect the ‘value which a restitution in kind would bear’⁶⁰, as referred to by the PCIJ in the abovementioned judgment.

Another early case brought before an international tribunal in which the amount of compensation payable to the claimant was established by reference to the actual amounts invested is *Phelps Dodge International Corp. v. Iran*.⁶¹ In this dispute, the claimant

⁵⁸ Factory at Chorzów (*Germany v. Poland*), Merits, Judgment No. 13, 1928, P.C.I.J., Series A, No. 17, p. 47.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ *Phelps Dodge Corp. et Al v. The Islamic Republic of Iran*, Award of 19 March 1986, 10 Iran-US C.T.R 121.

requested the tribunal to evaluate SICAB, the company at the centre of the dispute (where the claimant had been a shareholder prior to being expropriated by Iran), as a ‘going concern’ (*i.e.*, an operating entity with past operations). However, the tribunal refused to qualify SICAB as a going concern, and stated that ‘[t]he Tribunal cannot agree that SICAB had become a “going concern” prior to November 1980 so that good will could confidently be valued. In the case of SICAB, any conclusions on these matters would be speculative’.⁶² The tribunal grounded its decision not to qualify SICAB as a going concern on the fact that SICAB’s main asset, a cable factory, had not started its commercial operation at the date of expropriation. For this reason, it refused to grant the investors the value of the future profits that might have been obtained by SICAB (the calculation of which would have been ‘speculative’), but nevertheless recognized the claimant’s right to compensation for the loss of its investment. The tribunal established the investment’s value based on the amounts actually invested by the claimant in SICAB, and unequivocally stated that:

the value of Phelps Dodge’s ownership interest in SICAB on 15 November 1980 was equal to its investment [...].⁶³

Similarly, the invested amounts method was involved in *Biloune and Marine Drive Complex Ltd. v. Ghana Investments Centre and the Government of Ghana*, arbitration carried out under UNCITRAL rules. There, the dispute concerned the interests and rights held by a Syrian citizen, Mr. Antoine Biloune in a company set-up in Ghana, namely Marine Drive Complex Ltd. (‘MDCL’).⁶⁴ MDCL (the main shareholder of which was Mr. Biloune) entered in 1985 into an agreement with the Ghana Tourism Development Facility (‘GTDC’), a tourism company controlled by Ghana’s government, with the aim of developing, in a joint venture, a 4-star hotel complex in the city of Accra, Ghana.⁶⁵ GTDC was supposed to own 51% of the joint venture and to

⁶² Ibid, para. 132-133.

⁶³ Ibid, para. 31.

⁶⁴ For details, please refer to *Biloune and Marine Drive Complex Ltd. v. Ghana Investments Centre and the Government of Ghana*, Award on Jurisdiction and Liability, 27 October 1989 (ILR 95, p. 184 *et seq.*) and Award on Damages and Costs, 30 June 1990 (ILR 95, p. 211 *et seq.*).

⁶⁵ *Biloune and Marine Drive Complex Ltd. v. Ghana Investments Centre and the Government of Ghana*, Award on Jurisdiction and Liability, 27 October 1989, ILR 95, p. 184 and p. 191.

contribute the land required for the development of the project, whereas MDCL was supposed to own 49% of the joint venture and to carry out the necessary development and refurbishment works.⁶⁶ Mr. Biloune provided MDLC with the funds necessary for the latter to carry out activities and pay the ancillary costs and expenses (such as construction materials, supplies, equipment, architectural and engineering-related costs⁶⁷). Although MDLC performed significant activities regarding the development of the project, in August 1987 the City Council of Accra ordered the discontinuation of the construction works because GTDC failed to obtain a building permit in relation thereto.⁶⁸ Also, the City Council ordered the demolition of the works already performed for the project, and such demolition was partially completed even before the elapse of the statutory timeframe within which MDLC had the legal right to submit a formal answer to the Ghanaian authorities in relation to the order for the discontinuation of the construction works.⁶⁹ The Ghanaian authorities also closed the site of the project and forbade the access of the public to the project's premises.⁷⁰

Mr. Biloune brought a claim against Ghana in relation to the actual expropriation of its interests in MDLC and the project, and requested that the value of the damage incurred be calculated, alternatively, by reference to the amounts actually invested in the project, or by reference to the lost profits.⁷¹ The arbitral tribunal called to decide upon the dispute concluded that the acts of the Ghanaian authorities amounted to a constructive expropriation.⁷² With respect to the calculation of damages, the tribunal stated as follows:

The Claimants have also requested that Mr. Biloune be awarded the historical investment value of the project. Given the nature of the project, and its early interruption by the Respondents, the Tribunal has concluded that the most

⁶⁶ Ibid, p. 192.

⁶⁷ Ibid, p. 194.

⁶⁸ Ibid, p. 195.

⁶⁹ Ibid, pp. 196-197.

⁷⁰ Ibid, p. 200.

⁷¹ Ibid, p. 200 et seq.

⁷² Ibid, pp. 228-229.

appropriate method for valuing the damages to be paid will be to return to Mr. Biloune the amounts he invested in MDCL, *i.e.*, restitution.⁷³

Thus, Respondents are obligated to pay Mr. Biloune the amounts shown to have been invested by him, *i.e.*, sterling £50,756.85; DM 600.000; and US \$8,115.66 for the foreign currency investment, and 46,790,982.85 cedis.⁷⁴

The correlation of the terms ‘amounts invested’ and ‘restitution’ in the above decision underlines the close link between the restitution by equivalent and the invested amounts valuation method. The invested amounts method appeared to be considered, at the time of the award, the primary tool for assessing the value of the investments in cases where restitution in kind was impossible and where the affected business did not have a sufficient track record in order to allow the application of an income based valuation method.

2.1.2.2 Subsequent Developments Indicating Relevant Types of Costs and Sources of Invested Amounts

After the early applications referred to above, the invested amounts method was used by arbitral tribunals in a significant number of cases for the purposes of calculating the value of investments at the centre of investment disputes and the compensation payable to investors. Such cases offer additional information regarding the types of costs, as well as the origin of financial resources used by investors to cover such costs, which have been considered and accepted by arbitral tribunals within the process of establishing an investment’s value under the invested amounts method.

With respect to the **types of costs** considered in valuations carried out under the invested amounts method, a significant case is *Metalclad v. Mexico*, where the tribunal relied on decisions rendered in earlier cases in order to substantiate its choice to assess the value of investment and the amount of damages payable to Metalclad by reference to the amounts invested. The tribunal noted that, because the investment at the centre of the dispute had never actually started its commercial operation, the potential application of

⁷³ Emphasis added.

⁷⁴ *Biloune and Marine Drive Complex Ltd. v. Ghana Investments Centre and the Government of Ghana*, supra note 65, pp. 228-229.

the DCF method, proposed by the claimant, was excluded. The tribunal decided that the invested amounts method was more appropriate in the respective case, and took into account various types of fixed and variable costs incurred by the investor during a four-year term (from 1992 to 1996). In its decision, the arbitral tribunal explained as follows:

114. Metalclad has proposed two alternative methods for calculating damages: the first is to use a discounted cash flow analysis of future profits to establish the fair market value of the investment (approximately \$90 million); the second is to value Metalclad's actual investment in the landfill (approximately \$20–25 million).⁷⁵

121. The Tribunal agrees with Mexico that a discounted cash flow analysis is inappropriate in the present case because the landfill was never operative and any award based on future profits would be wholly speculative.

122. Rather, the Tribunal agrees with the parties that fair market value is best arrived at in this case by reference to Metalclad's actual investment in the project. [...] The award to Metalclad of the cost of its investment in the landfill is consistent with the principles set forth in *Chorzow Factory* [...], *Germany v. Poland* [...], namely, that where the state has acted contrary to its obligations, any award to the claimant should, as far as is possible, wipe out all the consequences of the illegal act and re-establish the situation which would in all probability have existed if that act had not been committed (the status quo ante).

123. Metalclad asserts that it invested \$20,474,528.00 in the landfill project, basing its value on its United States Federal Income Tax Returns and Auditors' Workpapers of Capitalized Costs for the Landfill reflected in a table marked Schedule A and produced by Metalclad as response 7(a)A in the course of document discovery. The calculations include landfill costs Metalclad claims to have incurred from 1991 through 1996 for expenses categorized as the COTERIN acquisition, personnel, insurance, travel and living, telephone, accounting and legal, consulting, interest, office, property, plant and equipment, including \$328,167.00 for "other".

125. The Tribunal agrees, however, with Mexico's position that costs incurred prior to the year in which Metalclad purchased COTERIN are too far removed

⁷⁵ *Metalclad Corporation v. The United Mexican States*, Case No. ARB(AF)/97/1, International Centre For Settlement Of Investment Disputes (Additional Facility), Award of August 30, 2000, para. 114. From a different perspective, in addition to evidencing the types of costs counted under the invested amounts method, the award indicates the large discrepancies which can be derived when applying an asset based method in parallel with an income based method to the same investment subject to assessment: as per the claimant's assertions, the outcome of the valuation based on the invested amounts was by 4.5 to 3.6 times lower than the outcome of the DCF valuation. Consequently, the invested amounts method may be perceived as a method leading to lower results than the income based method (at least in the case of going concerns) and, from the standpoint of such results, may be regarded, in cases similar to the one referred to above, as a method more favourable to the host state than to the affected investor.

from the investment for which damages are claimed. The Tribunal will reduce the Award by the amount of the costs claimed for 1991 and 1992.⁷⁶

The above arbitral award indicates with clarity two main criteria relevant for the selection of costs to be taken into account when carrying out investment valuation based on the invested amounts method, namely (a) the direct link between the costs paid by the investor and the affected investment subject to valuation; and (b) the temporal proximity between the date(s) of the expense(s) incurred by the investor and the timeframe within which the investment was established and developed. Starting from such criteria, the tribunal can identify, on a case by case basis, the actual costs and expenses incurred by the investors when developing investments and which may be taken into account under the invested amounts method. Such cost can include, among others, acquisition, personnel, insurance, travel and living, telephone, accounting and legal, consulting, interest, office expenses to property, plant, equipment and various other costs.⁷⁷

In addition to the types of costs considered under the invested amounts method, another matter of relevance regards the source of the invested amounts, and the potential impact of such sources on the actual assessment of invested amounts and overall investment value. In *Wena v. Egypt*,⁷⁸ the respondent argued that the investment value and quantum of compensation to be granted by the arbitral tribunal to the affected investor (as calculated under the invested amounts method) must be reduced because only part of the invested amounts were expenses made by the claimant itself, while others were attributable to the claimant's affiliates. However, the tribunal noted that the allocation of expenses between different entities under the same ultimate corporate control was a common practice in the hotel industry (where the affected investment and investor activated), due to tax optimization reasons. Thus, it decided that the value of the investment, calculated under the invested amounts method, must include the investments

⁷⁶ *Metalclad Corporation v. The United Mexican States*, Case No. ARB(AF)/97/1, International Centre For Settlement Of Investment Disputes (Additional Facility), Award of August 30, 2000, paras. 123.

⁷⁷ Ibid.

⁷⁸ *Wena Hotels Limited v. Arab Republic of Egypt*, Case No. ARB/98/4, Award of 8 December 2000.

made by the claimant's affiliates for and on behalf of the claimant. In its award, the tribunal stated that:

125. [...] the Tribunal agrees with the parties that the proper calculation [...] is best arrived at, in this case, by reference to Wena's actual investments in the two hotels. [...]

126. The Tribunal is not persuaded by the relevance of the respondent's contention that much of the Egyptian investment came from affiliates of Wena rather than from Wena. Instead the panel takes the view that whether the investments were made by Wena or by one of its affiliates, as long as those investments went into the Egyptian hotel venture, they should be recognized as appropriate investments. The panel was persuaded from the testimony it received that it is a widely established practice for hotel enterprises to adopt allocation measures, which spread the profits from the group operations into various jurisdictions where there are tax advantages to the group as a whole.⁷⁹

The arbitral tribunal made therefore a particular application of the 'substance over form' principle when considering the sources of expenses used for the setting-up and development of the investment at the centre of the dispute, by looking beyond the strict corporate structure of the claimant entity and considering the expenses incurred by other corporate vehicles from the same group with the claimant during the application of the invested amounts method.

2.1.2.3 Application Mechanism

The process of establishing the value of an investment at the centre of an investment dispute pursuant to the invested amounts method consists of two main phases. In the first phase, the aggregate value of invested amounts is calculated based on the costs incurred by the investor during the development of its investment. Such costs may include contributions to the share capital of the corporate vehicle used to operate the investment, finances injected in the company, employment-related expenses, consultancy fees, travel costs etc. In the second phase, any expenses which are not directly related to the investment at the centre of the dispute are deducted from the value of invested amounts. The residual value of the investment and particular losses attributable to business risks may be also deducted from the sum obtained in the

⁷⁹ Ibid, paras. 125-126.

previous phase of the calculation. The residual value of the investment may be deducted from the aggregate value of the invested amounts (for the purposes of avoiding the over-compensation of the claimant) in cases when the affected investor retains ownership over the part of the investment corresponding to such residual value. The losses attributable to business risks may be likewise, in majority of cases, deducted from the value of the invested amounts, since such losses would have occurred in any event, independent of interferences of the host state or the commercial conduct of the investor.

The application of the invested amounts method in investment disputes is concisely explained by the arbitral award issued in *MTD v. Chile*, which states as follows:

239. The Tribunal considers that the Claimants have proven that the expenditures related to the Project were made by them or on their behalf and that they were made for purposes of the investment in Chile.

240. The Tribunal considers as eligible for purposes of the calculation of damages the following expenditures:

(i) Expenditures related to the initial investment in the amount of US\$ 17,345,400.00.

(ii) [...] the Tribunal considers that expenditures for the Project prior to the execution of the first Foreign Exchange Contract on March 18, 1997 are not eligible for purpose of the calculation of damages even if they could be considered part of the investment. [...]

(iii) The Tribunal considers the financial costs related to the investment made to be part of a business decision on how to finance the investment. As stated by the tribunal in *Middle East Cement* and referred to by the parties in their allegations: “They could be claimed, if it were shown that they were caused by conduct of the Respondent which was in breach of the BIT.” [...] Since the Tribunal has found that Chile breached its obligation to treat the Claimants’ investment fairly and equitably and this treatment is related to the decision of the Claimants to invest in Chile, the Tribunal considers that the financial costs related to the investment in the amount of US\$ 3,888,582.95 are part of the eligible expenditures for purposes of the calculation of damages.

241. The aggregate of the above eligible expenditures amounts to US\$ 21,469,588.32. However, the residual value of the investment and the damages that can be attributed to business risk need to be deducted from such amount. [...]⁸⁰

⁸⁰ *MTD Equity Sdn. Bhd. & MTD Chile S.A. v. Chile*, ICSID Case No. ARB/01/7 (Malaysia/Chile BIT), Final Award, 25 May 2004, paras. 239-241.

As indicated above, one of the advantages of the invested amounts method arises from the fact that the expenses incurred by the investor may be substantiated in most cases by concrete evidence (such as paid invoices, bank transfers to contractors and employees, tax receipts etc.). However, not all expenses made by investors when developing their investments can be demonstrated in practice through such evidence (common examples in this respect are out-of-pocket expenses and living expenses).

For this reason, although the invested amounts are ascertainable and can be, in principle, accurately demonstrated by the claimant, approximations are not completely excluded. One of the investment disputes where partial evidence filed by the claimant with respect to its expenses was doubled, under the invested amounts method, by the arbitral tribunal's approximations in relation thereto is *Compañía de Aguas del Aconquija S.A. and Vivendi Universal v. Argentine Republic*. There, the arbitral tribunal agreed that, although the information provided by the claimant was not complete, the value of the invested amounts can be nevertheless calculated with certain estimations made by the tribunal:

8.3.13. [...] the “investment value” of the concession appears to offer the closest proxy, if only partial, for compensation sufficient to eliminate the consequences of the Province's actions.

8.3.16. As foreshadowed above, the evidence of what Claimants invested in the concession is incomplete – it not having been put forward initially by Claimants as an alternative to its lost profits analysis. Nevertheless, there is useful evidence on the record and it is well settled that the fact that damages cannot be fixed with certainty is no reason not to award damages when a loss has been incurred. [...] In such cases, approximations are inevitable; the settling of damages is not an exact science.

8.3.18. Thus, based on the evidence in the record, which we find to be both credible and sufficient, we find that CGE/Vivendi and CAA's other shareholders contributed US\$30 million in equity capital to CAA and that CGE/Vivendi invested further sums of US\$75 million (by way of loans) to finance the operation of the concession until its management was taken over by ENHOSA on 7 October 1998 [...].

8.3.19. Having regard to the Province's violation of Articles 3 and 5 of the BIT, we fix the investment value of the concession at the date of expropriation, 27 August 1997, in the amount of US\$51 million (US\$30 million capital plus US\$21 million further debt investments). We also find that CGE/Vivendi invested by way of debt an additional US\$54 million in CAA after that date

(US\$75 million less US\$21 million). Further, and absent evidence to the contrary, we find CAA currently to be of no or nominal value.

8.3.20. In these circumstances, we calculate CAA's investment damages to be US\$105 million (US\$51 million plus US\$54 million). As its 94.4% de facto shareholder, Vivendi is entitled to a 94.4% share of CAA's damages.⁸¹

The above wording of the arbitral award refers to the process of establishing damages as 'not an exact science', in which, in certain cases, 'approximations are inevitable'. The possibility – recognised above – to approximate investment value can lead to situations when arbitrators establish investment value without any scientific basis for their assessment, and in disregard of valuation results, thus rendering futile valuation exercises and imposing investment values based on arbitrary decisions. For this reason, instances when investment value is established based on ungrounded and unjustified approximations, and not following a scientific valuation, should be limited or, preferably, excluded in investment arbitration cases.

2.1.2.4 Adjustment of Invested Amounts by Arbitral Tribunals

The possibility for investors to over-pay for particular goods or services acquired during the process of setting-up and developing their investments is also relevant in the context of the invested amounts valuation method. An investor might pay a price higher than the regular market value of goods or services, in order to secure faster a larger market share, or for the purpose of making its investment operational before its competitors. In such cases, the investor would generally aim to recuperate the higher amounts paid by taking advantage, at a later stage, of the market position obtained following higher initial expenditures.

These types of situations raise the question if the initial above-the-market prices paid by investors may be used as such by arbitral tribunals when establishing the value of investments under the invested amounts method. When dealing with this issue, tribunals must decide if the value of investments at the centre of disputes can be based on the actual expenditures made by investors willing to take the risk of over-paying for goods

⁸¹ *Compañía de Aguas del Aconquija S.A. and Vivendi Universal v. Argentine Republic*, ICSID Case No. ARB/97/3 (France/Argentina BIT), Award of 20 August 2007, paras. 8.3.13-8.3.20.

and services, or, alternatively, if the value of such investments should be grounded on the amounts which a prudent, well-informed and diligent investor would pay for the same goods and services.

The matter of equivalence or proportionality between the invested amounts recognized by the arbitral tribunal and the market value of the goods and services purchased by the investor when investing such amounts was referred to in *Azurix v. Argentine*.⁸² In this case, the dispute referred to the claimants' rights in a 30-year concession regarding the distribution of potable water, as well as the provision of sewerage services, in the Province of Buenos Aires.⁸³ After the claimants paid a significant amount for the concession rights (*i.e.*, a 'canon payment' of 438,555,554 Argentine pesos, also referred to as the 'Canon') in 1999,⁸⁴ Argentina breached several of its undertakings towards Azurix – such as the standards of fair and equitable treatment⁸⁵ and full protection and security⁸⁶ – and thus damaged the claimant and its investment.⁸⁷

Azurix argued that the value of its investment (and, consequently, the value of the damage suffered) should be assessed by way of two alternative methods: the 'actual investment' method and the book value method.⁸⁸ As regards the first method, Azurix claimed that it had invested '\$449 million when it acquired the Concession, \$102.4 million in additional capital contributions to ABA,⁸⁹ and \$15 million on consequential costs including corporate expenditures and legal costs related to negotiations with the Province'.⁹⁰ Although the arbitral tribunal agreed with the fact that the actual

⁸² *Azurix v. Argentine Republic*, ICSID Case No. ARB/01/12 (United States/Argentina BIT), Award, 14 July 2006.

⁸³ *Ibid.*, para. 41.

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*, para. 377.

⁸⁶ *Ibid.*, para. 408.

⁸⁷ However, as determined by the arbitral tribunal, Argentina has not expropriated the claimant's right over the concession. For details, please refer to the case quoted *supra* at note 82, para. 322.

⁸⁸ *Supra* note 82, para. 425.

⁸⁹ The Argentinean subsidiary of Azurix, namely Azurix Buenos Aires S.A. (as referred to at para. 11 of the award issued in *Azurix v. Argentine Republic*).

⁹⁰ *Supra* note 82, para. 411.

investment method was appropriate, it also noted that Azurix paid above-the-market prices during the process of developing its investment. The tribunal stated as follows:

425. Azurix [...] has asserted in addition that the argument in support of using actual investment is compelling as the investment is recent and highly ascertainable. The Tribunal agrees that the actual investment method is a valid one in this instance. However, the Tribunal considers that a significant adjustment is required to arrive at the real value of the Canon paid by the Claimant.

426. First of all, in the Tribunal's view, no well-informed investor, in March 2002, would have paid for the Concession the price (and more particularly, the Canon) paid by Azurix in mid-1999, irrespective of the actions taken by the Province and of the economic situation of Argentina at that time. In that regard, the Tribunal refers to some of the concerns expressed by OPIC at the time it denied financing the investment plan of ABA. As already noted, OPIC pointed out the size of the investments needed to achieve the Concession's objectives as compared to the estimated revenues expected from the tariffs in effect, and considered that failure to agree on a modification of the Concession in order to establish a sustainable situation was an obstacle to OPIC's financing. [...].

429. Considering those factors and valuing the Canon at present-day value, the Tribunal is of the opinion that no more than a fraction of the Canon could realistically have been recuperated under the existing Concession Agreement. The Tribunal therefore concludes that the value of the Canon on March 12, 2002 should be established at US\$60,000,000 (sixty million US dollars).⁹¹

The invested amounts method applied in the above case involved a significant downward adjustment of the prices paid by claimant so as to reflect, primarily, the value which a well-informed potential investor would have paid, under the same circumstances, for the same assets and concession rights and, subsequently, the profit-generating prospects of the concession, which would actually have allowed the investor to recuperate its investment. The invested amount method applied in the case appears therefore to have taken into account market and income related matters in order to accurately reflect the value of the investment, and thus the amount of compensation payable to the affected foreign investor.

⁹¹ Ibid, paras. 425-429.

2.2 Book Value Method

2.2.1 Concept

The book value method assesses the worth of an investment by reference to the value under which its constituent parts are recorded in the investment's accounting books, such value being referred to as 'book value'. As a consequence of the fact that the book value method is the valuation tool for assessing book value, information about book value offers important details about the valuation method with the same name.

The IVS make reference to book value in the context of assessing the value of both assets and business entities. With respect to assets, the book value means 'the capitalized cost of an asset less accumulated depreciation, depletion or amortisation as it appears on the account books of the business.'⁹² With respect to a business entity, the book value refers to 'the difference between total assets (net of depreciation, depletion and amortisation) and total liabilities of a business as they appear on the balance sheet'.⁹³ In this context, book value is the same with 'net book value' and 'net worth'.⁹⁴ While the book value of assets is the value of a particular asset as recorded in the financial statements, the book value of an enterprise is equal to the overall value of assets comprising such enterprise, less the total value of liabilities. As a large number of investments are complex undertakings which may qualify as enterprises, the concept of 'enterprise book value' is in most cases relevant in investment arbitration.

Unlike other valuation methods, the book value method does not reflect in the valuation the added value that the management could bring to a business, nor the value of goodwill, reputation, know-how or other similar intangibles which are usually not recorded in the financial statements of the investment subject to valuation, but which might nevertheless influence the overall value of the investment subject to valuation.⁹⁵

⁹² IVS, Eighth Edition, 2007, Guidance Note 6 (*Business Valuation*), para. 3.3.1, p. 228.

⁹³ Ibid, para. 3.3.2, p. 228.

⁹⁴ Ibid, para. 3.3.2, p. 228.

⁹⁵ R. B. Dickie, *Financial Statement Analysis and Business Valuation for the Practical Lawyer* (2nd Edition, American Bar Association, 2006), para. 8.2.(a).

This perspective adopted under the book value method disregards the latest developments in the valuation practice, which recognise that intangibles such as goodwill can play an important role in the overall worth of an investment.⁹⁶ For this reason, the book value has been treated with scepticism by part of the valuation doctrine, some authors considering that the ‘book value’ may not be viewed as a standard of value, but merely as an accounting term used to denominate, in case of companies, the value of the owners’ equity on a balance sheet (namely, assets less liabilities) and, in case of assets, the assets’ historical costs reduced by, *inter alia*, depreciation and amortization.⁹⁷

Despite such criticism, in addition to the IVS, the book value method has been expressly referred to in the World Bank Guidelines on the Treatment of Foreign Direct Investment as one of the potential methods which may be used for the purposes of establishing investment value in investor-state arbitration cases (particularly in expropriation cases). Article IV (*Expropriation and Unilateral Alterations or Termination of Contracts*) of the World Bank Guidelines states that:

6. Without implying the exclusive validity of a single standard for the fairness by which compensation is to be determined and as an illustration of the reasonable determination by a State of the market value of the investment [...], such determination will be deemed reasonable if conducted as follows:

[...] (iii) for other assets, on the basis of (a) the replacement value or (b) the book value in case such value has been recently assessed or has been determined as of the date of the taking and can therefore be deemed to represent a reasonable replacement value.⁹⁸

Under the World Bank Guidelines, the book value method is placed in conjunction with the replacement value method. However, the book value method and the replacement value method are clearly distinct valuation instruments used to assess the value of investments at the centre of investor – host state disputes.

⁹⁶ Philipp Sandner, *The Valuation of Intangible Assets* (Springer Fachmedien, 2010), pp. 44, 50 *et seq.*

⁹⁷ Jay Fishman, Shannon Pratt, William Morrison, *Standards of Value: Theory and Applications* (John Wiley & Sons, 2007), p. 28.

⁹⁸ World Bank Guidelines on the Treatment of Foreign Direct Investment, Art. IV (*Expropriation and Unilateral Alterations or Termination of Contracts*), clause 6.

As the book value method is a distinct valuation tool, the current section analyses the mechanisms involved in its application (*i.e.*, establishing the value of assets, application of depreciation, depletion or amortisation factors, subtraction of liabilities), as well as the case-law where the book value method was applied.

2.2.2 Application Mechanism

The application of the book value method for the valuation of investments in arbitral disputes is in most cases a three step process. The first step involves the calculation of the total value of the investment's assets based on the recordings made in the accounting documents. This is followed, in the second step, by the application of value discounts related to depreciation, depletion or amortisation of such assets. In the third step, the liabilities pertaining to the investment are subtracted from the total value of assets. Such phases are detailed below, accompanied by illustrative examples from the international arbitration jurisprudence.

2.2.2.1 Calculating the Total Value of Assets

The first step for assessing the value of investments at the centre of investment disputes based on the book value method consists in the calculation of the total value of assets acquired by the investor in order to set up and operate the investment. The assets to be taken into account in the calculation include current assets (such as cash, short-term investments, stock⁹⁹), non-current assets (also known as fixed assets, such as properties, plans and equipment¹⁰⁰) or other types of assets (such as long-term receivables¹⁰¹). The calculation of the total assets' value is made by aggregating the historical values recorded in the accounting books or financial statements of the corporate vehicle used to operate the investment.¹⁰²

⁹⁹ IVS, Eighth Edition, 2007, Concepts Fundamental to Generally Accepted Valuation Principles, para. 3.5.1, p. 23.

¹⁰⁰ Ibid, para. 3.5.2.1, p. 24.

¹⁰¹ Ibid.

¹⁰² The aggregation can be influenced by the fact that certain recordings may be challenged by the parties to the arbitral dispute or by the arbitral tribunal, thus leading to the dismissal of certain recordings for valuation purposes.

As most accounting documents and financial statements are kept in accordance with generally accepted international accounting principles, the values recorded by them may be accepted as such by arbitral tribunals. In cases when the financial documents of the investments involved in arbitration proceedings are also audited by reputable independent auditors, such documents may be clearly regarded as appropriate evidence for the purposes of establishing the investments' book value and the compensation payable to the foreign investors. This was the case in *Siemens v. Argentina*, where the arbitral tribunal decided to rely on the financial statements prepared by the claimant and audited by KPMG, and to reject the appointment of a third-party expert for the purposes of double-checking KPMG's conclusions. The tribunal stated that:

358. The parties have taken different approaches in respect of what is the adequate evidence of Siemens' investment.

359. [...] Siemens contends that the financial statements properly audited are sufficient evidence of Siemens' investments, that the financial statements of SITS were audited by KPMG, and that no evidence has been presented to question KPMG's audit.

360. [...] The Tribunal has to apply customary international law. [...] The Project has started to operate and no convincing evidence has been submitted showing that the funds intended for the Project made available to SITS, as loans or equity, were not used for the intended purpose. [...] For these reasons, the Tribunal saw no merit in prolonging the proceedings and engaging an expert to analyse the accounts of SITS [...].¹⁰³

The arbitral tribunal underlined that, in the circumstances of the case, the investment value is not given by a 'subjective value' (*i.e.*, the value of the investment to Argentina or to Siemens), but is indicated in an objective manner (*i.e.*, by the book value duly reflected by the accounts of SITS). From this perspective, the financial documents audited by a reputable neutral advisor constituted sufficient evidence of the total value of investments made by Siemens, without the claimant being required to prove how the amounts registered on the financial statements have been actually spent and allocated.

¹⁰³ *Siemens A.G. v. The Argentine Republic*, ICSID Case No. ARB/02/8, Award of 6 February 2007, paras. 358-360.

2.2.2.2 Application of Depreciation, Depletion or Amortisation Factors

After the historical value of an investment's constitutive assets is established (on the basis of the accounting documents kept by the investment), this value is also updated so as to reflect the value of the respective assets as of the valuation date. To this end, as explained by the IVS and the World Bank Guidelines, the depreciation, depletion and/or amortisation factors (explained below) are also taken into account. The calculation of the value of assets and the application of such factors may also be carried out simultaneously.

A. Depreciation relates to the estimated decline of a tangible asset's value over time,¹⁰⁴ and is viewed as the difference of the respective asset's value at two distinct moments in time.¹⁰⁵ At each moment, the depreciated value of the asset should reflect the cost of replacing the asset with another one having the same characteristics and quality, whilst taking into account the physical deterioration, the economic obsolescence and technical decline which might affect the asset over time.¹⁰⁶ There are two main meanings to depreciation, namely: (i) economic depreciation, which regards the change in the present value of an asset as such assets ages,¹⁰⁷ and (ii) accounting depreciation, which refers to the allocation, in the financial documentation of the entity to which the assets belong, of the depreciable value of the asset over its useful life.¹⁰⁸

Generally, depreciation is considered similar for assets within the same type or class,¹⁰⁹ and several economic assumptions and patterns can be used to

¹⁰⁴ Ripinsky, Williams, *supra* note 10, at 221.

¹⁰⁵ Joseph Saleh, *Analyses for Durability and System Design Lifetime: A Multidisciplinary Approach* (Cambridge University Press, 2007), p. 172.

¹⁰⁶ IVS, Eighth Edition, 2007, *Concepts Fundamental to Generally Accepted Valuation Principles*, para. 3.7, pp. 24-25.

¹⁰⁷ Joseph Saleh, *supra* note 105, at 174.

¹⁰⁸ IVS, *supra* note 106, pp. 24-25.

¹⁰⁹ Charles Hulten, Frank Wykoff, 'Issues in the Measurement of Economic Depreciation', *Economic Inquiry* (1996), Vol. XXXIV, No. 1 (January), pp. 10-23, referenced in Joseph Saleh, *supra* note 105, at 171.

estimate the depreciation rate. However, it is commonly recognised that if the decline in efficiency of an asset is fast, the depreciation schedule for such asset tends to have high initial values.¹¹⁰ As depreciation rates may thus vary based on several factors and assumptions, in investment arbitration such rates are often challenged by disputing parties,¹¹¹ due to their influence on the overall investment value, and therefore on the compensation awarded to the foreign investor.

B. Depletion refers to the measureable diminishing or deterioration of certain types of reserves of natural resources (such as gas, oil, timber, precious metals).¹¹² Depletion may be used within the book value method primarily when the main assets of an investment at the centre of a dispute consist of natural resources (for example, when a foreign investor obtains from the host state a concession or ownership right over oil or gas fields).

While the overall value pertaining to depletion affecting a natural resource from a certain area during a particular period of time may be determined on the basis of the total value of the natural resources which have been actually extracted within the specified timeframe, arbitral tribunals have referred only in rare occasions to the depletion of natural resources,¹¹³ and, to our knowledge, they have not implemented the concept in the context of applying the book value method.

¹¹⁰ Dan Usher, *The Measurement of Capital* (University of Chicago Press, 2008), p. 75.

¹¹¹ *Duke Energy International Peru Investments No. 1, Ltd. v. Republic of Peru*, ICSID Case No. ARB/03/28, Decision on Jurisdiction of 1 February 2006, para. 63 *et seq.*, and *Duke Energy International Peru Investments No. 1, Ltd. v. Republic of Peru*, ICSID Case No. ARB/03/28, Award of 18 August 2008, para. 320 *et seq.*

¹¹² For a case analysis about the impact of the depletion of traditional fuel resources and the use of renewable natural resources, please refer to Jarvela, Marja; Juhola, Sirkku (Editors) – *Energy, Policy, and the Environment* (Springer Verlag New York, 2012).

¹¹³ For instance, in *Bridas S.A.I.P.I.C., Bridas Energy International, Ltd., Intercontinental Oil & Gas Ventures, Ltd. and Bridas Corporation v. Government of Turkmenistan, Concern Balkannebitgazenagat and State Concern Turkmenneft*, ICC Arbitration Case No. 9058/FMS/KGA, Third Partial Award, 2 September 2000, para. 41.

C. **Amortization** represents the equivalent of depreciation, but is usually applied to intangible assets (unlike depreciation, which is applied to tangible assets).¹¹⁴ In some jurisdictions, the terms of amortization and depreciation are used interchangeably.¹¹⁵ As the book value method does not rely on nor calculate the value of goodwill, reputation and know-how acquired by an investment (as such elements are not registered in the financial documents), the use of amortization in the field of international investment arbitration is rather restricted, as only a limited number of intangible assets may be taken into account (*e.g.*, software acquired by an investor in order to manage a gas distribution network).

2.2.2.3 Subtraction of Liabilities

As a result of depreciation, depletion and/or amortisation factors being applied to the value of the investment's constituent assets, the valuation exercise reaches a diminished value for such assets. In the subsequent step of applying the book value method, the aggregate of such diminished values is further reduced through the subtraction of liabilities incurred or contracted by the investment.

Liabilities include loans and interest payable to financial institutions or other companies within the investor's group, costs for the acquisition of assets, rent, salaries of the employees, tariffs and taxes etc.

Although when applying the asset based approach arbitral tribunals can also simply use the final results registered in the investments' accounting documents (which point directly the difference between assets and liabilities), there are several cases when tribunals analyse separately the items included in each category (assets, depreciation/depletion/amortisation factors, and liabilities), in order either to ascertain that no improper registrations have been made in the financial documents, or to verify

¹¹⁴ Please note that the accounting meaning of amortization is used, and not the definition used in the banking system. For an analysis of amortization in the field of securitization, please refer to Frank Fabozzi, Vinod Kothari, *Introduction to Securitization* (John Wiley & Sons, 2008), p. 158.

¹¹⁵ Ripinsky, Williams, *supra* note 10, at 221.

the amounts pertaining to assets and liabilities. For instance, in *Siemens v. Argentina*, the arbitral tribunal analysed multiple aspects registered in the investment's financial statements, and decided not to consider certain amounts (such as excessive interest rates and tax credits) for the purposes of applying the book value method. The tribunal decided as follows:

367. Mr. Lemar, the Siemens' expert, has concentrated on the financing of SITS and has calculated the book value by adding Siemens' capital contributions, the loans made to SITS and the corresponding interest, as recorded in SITS's financial statements for 2001. Mr. Lemar concludes that the book value of Siemens' investment at May 17, 2001 was \$283,859,710.

368. The Tribunal observes, that except for Mr. Lemar's, none of the valuations listed above respond to the criteria that need to be applied by the Tribunal and, as explained forthwith, the Tribunal has difficulty in accepting the value of the investment as calculated by Mr. Lemar. The Tribunal will use as a starting point SITS' audited financial statements.¹¹⁶ [...]

375. To conclude the book value calculation, the Tribunal decides that such value is the value claimed by Siemens minus the amounts disallowed above on account of excessive interest rates, tax credits and risks associated with Contract Termination. The amounts corresponding to these items add up to AR\$ 75,419,170, which when subtracted from AR \$283,859,710 claimed by Siemens reduce the book value of the investment to AR \$208,440,540.¹¹⁷

After eliminating from the valuation the excessive interest rates, tax credits and provisions for risk of contract termination (all of which were initially indicated by the claimant's expert as pertaining to the investment), the tribunal re-calculated book value of the investment to AR \$208,440,540,¹¹⁸ and compensated the claimant on this basis.

The above arbitral award also points out two main issues related to the application of the book value method in investment disputes. The first one relates to the fact that arbitral tribunals have the undisputed ability to assess if any recordings made in the accounting and financial documents may be disallowed for valuation purposes. The second issue indicates that the application of the book value method by arbitral tribunals is not limited to simply using the final financial results registered in the investments' accounting

¹¹⁶ *Siemens A.G. v. The Argentine Republic*, ICSID Case No. ARB/02/8, Award of 6 February 2007, paras. 367-368.

¹¹⁷ *Ibid*, para. 375.

¹¹⁸ *Ibid*, para. 403.

documents, but involves a process of selection and deliberation on aspects regarding accounting evidence and registrations to be included in the valuation, as well as the assessment, in distinct stages, of the overall value of assets followed by the subtraction of liabilities.

2.2.3 Recognition and Application in Investment Arbitration

The book value method is used for two main purposes in international disputes, namely (i) to establish the overall value of entire investments at the centre of disputes (the enterprise value), and (ii) to assess the value of certain components of investments involved in arbitration, as detailed below.

2.2.3.1 Application for the Valuation of Entire Investments

In addition to the cases already mentioned, the book value method was accepted by the ICSID tribunal for the overall assessment of the investment at the centre of the dispute in *Asian Agricultural Products Ltd. (AAPL) v. Sri Lanka*. In its award, the tribunal stated that:

98. [...] the Tribunal is of the opinion that the determination of AAPL's shareholding in Serendib's capital is a false problem, since the relevant factor is to establish a comprehensive balance sheet which reflects the result of assessing the global assets of Serendib in comparison with all the outstanding indebtedness thereof at the relevant time.¹¹⁹

100. [...] In the light of all the elements of evidence provided by both Parties [...], the Tribunal considers that the fair evaluation *exclusively based on Serendib's tangible assets*¹²⁰ leads to value AAPL's investment in that company at a total amount of 460,000 U.S. Dollars.¹²¹

Even though the ICSID tribunal did not expressly refer to the book value method, the tribunal mentioned that it applied a valuation technique based on the comparison between the total value of assets and the total value of indebtedness attributable to the investment, which is typical for the book value method. The tribunal also stated that the

¹¹⁹ *Asian Agricultural Products Ltd. v. Sri Lanka*, ICSID Case No. ARB/87/3 (United Kingdom of Great Britain and Northern Ireland/Sri Lanka BIT), Final Award of 27 June 1990, para. 98.

¹²⁰ Emphasis added.

¹²¹ *Asian Agricultural Products Ltd. v. Sri Lanka*, supra note 119, para. 100.

valuation was based solely on the tangible assets of the affected investment – an aspect characteristic for the book value method, which does not take into account the value of goodwill or other similar assets. As a result, the ICSID tribunal clearly applied and endorsed the book value method for the valuation of the claimant’s investment in Sri Lanka.

The book value method was also applied in the practice of the Permanent Court of Arbitration. In *Reineccius v. Bank for International Settlements* (‘BIS’), the arbitral tribunal considered that it can rely on the information from the balance sheets of BIS, which offered an accurate overview of the value of BIS:

197. As for the mathematical method, akin to the NAV, the Report found, in the case of the BIS, this was:

... the only reliable way ... as it avoids as far as possible the capricious nature of the other methods considered above and is not affected by external circumstances. It also has an additional advantage in that the balance sheet of the BIS offers a more exact picture of the value of the enterprise than the balance sheet of an ordinary commercial enterprise; the BIS has no real hidden reserves and apart from the value attributable to its full-amortised buildings and land, which of course would always be open to discussion, the balance sheet gives a fairly accurate picture of the actual worth of the enterprise.¹²²

Although, from the three methods available to the tribunal – the ‘future profitability of the enterprise’, ‘market value of the shares’ and the ‘mathematical method’,¹²³ – the tribunal referred to the valuation instrument it considered the most appropriate as the ‘mathematical method’, such method corresponds in fact to the book value method. This conclusion is based on the fact that the method applied by the tribunal relied on the information offered by the balance sheet of BIS and involved the aggregation of the value of assets, followed by the subtraction of the liabilities pertaining to the business at the centre of the dispute.

¹²² *Horst Reineccius et al. v. Bank for International Settlements*, Award of 22 November 2002, para. 197.

¹²³ *Ibid*, paras. 195-196.

2.2.3.2 Application for the Valuation of Separate Assets within Investments

In addition to assessing the overall value of investments, in some instances arbitral tribunals applied the book value method for the valuation of parts of investments at the centre of disputes. One illustrative case in this respect is *Libyan American Oil Company (LIAMCO) v. Libya*,¹²⁴ a dispute in relation to concession agreements held by the claimant for the exploration and production of oil in Libya. After the Libyan government nationalized the physical assets and concession rights held by LIAMCO without granting any compensation, LIAMCO started arbitral proceedings against Libya. LIAMCO requested as primary relief the complete restoration of the rights taken by Libya (*restitutio in integrum*) or, alternatively, the indemnification for the nationalization by Libya of LIAMCO's physical current and fixed assets, as well as indemnification for the loss of profits resulting from the expropriation by Libya of LIAMCO's concessions rights over two oil fields (Raguba Field and Mabruk Field).

With respect to the claim related to indemnification for the nationalization of LIAMCO's assets, the claimant used the book value method to justify that the net value of assets held by LIAMCO was US\$13,882,677. Such assets included office equipment, stored oil, supplies, oil wells and ancillary facilities, cash etc.¹²⁵ After reviewing the evidence submitted by the claimant (including expert reports and lists of assets), the arbitrator decided to grant LIAMCO the full amount requested in relation to the nationalised assets, thus approving the calculation based on the book value method.¹²⁶

¹²⁴ *Libyan American Oil Company (LIAMCO) v. The Libyan Arab Republic*, Arbitral Award of 12 April 1977 issued by the Ad Hoc Tribunal (Arbitrator Dr. Sobhi Mahmassani) under the Draft Convention on Arbitral Procedure, ILC 1958, 62 International Law Reports 140.

¹²⁵ For further details, please refer to *Libyan American Oil Company (LIAMCO) v. The Libyan Arab Republic*, Arbitral Award of 12 April 1977, ILC 1958, 62 International Law Reports 140, as well as the case summary available at http://www.biicl.org/files/3939_1977_liamco_v_libya.pdf (accessed on 10 August 2014).

¹²⁶ It should be noted that the doctrine has expressed contradictory standpoints with respect to the application of the book value method in *LIAMCO v. Libya*. While Ripinsky and Williams (supra note 10, at 223) affirm that 'book value of the expropriated asset was awarded in *Liamco v. Libya*', Marboe (supra note 9, at 270) states that 'the tribunals in [...] *LIAMCO v. Libya*, for example, held that the book value should not be applied even in cases of lawful expropriation'. Given the factual background referred to above, it may be affirmed that the application of the book value method for the calculation of part of the compensation payable to the foreign investor

Nevertheless, although the amount awarded to LIAMCO as compensation for the expropriated physical assets was calculated pursuant to the book value method, such calculation was used to determine only the part of the compensation payable by Libya in relation to the taken assets, because the value of loss of profits was established under the income based approach.¹²⁷

In addition to the above case law which clearly endorses the application of the book value method to both entire investments and parts thereof, there have also been investment disputes when arbitral tribunals rejected the application of the book value method, or expressed reluctance to apply it when other valuation methods were available. This position of international tribunals in relation to the use of the book value method for the purposes of establishing investment value (and therefore the level of compensation) was expressed, among others, by the arbitral award issued in *Amco v. Indonesia II*:

While it is true that the value of the assets has been used as the measure of damages in a number of international claims, it is by no means the prevailing method of valuation for damages. [...] the book value basis of valuation seems to have been only used where compensation for prospective earnings was excluded for some reason, either ‘in the absence of other evidence’, or because a claim for prospective profits was ‘not compensable under the Act’, or because the claimant himself had requested as damages the reimbursement of his invested capital, or the liquidation value of its equity interest, or again because the claimant’s property had never become a ‘going concern’ before the claim for damages arose.¹²⁸

Based on this last example – which indirectly also confirms the possibility to use the book value method for valuation if investments in international disputes – it may be affirmed that arbitration tribunals have also manifested scepticism towards the book value method, and considered it as a method of last resort, which can be used only when other more comprehensive methods are inapplicable, and which requires improvement and adaptation.

(i.e., the compensation for the nationalization by Libya of LIAMCO’s physical assets) cannot be denied.

¹²⁷ Ripinsky, Williams, *supra* note 10, at 223.

¹²⁸ *Amco v. Indonesia II*, Award on the Merits, 31 May 1990, 89 ILR 368, para. 193, in Sergey Ripinsky, Williams, *supra* note 10, at 223.

2.2.4 Adjusted Book Value Method – Particular Application of the Book Value Method

As a result of the fact that the valuation doctrine and practice (including in the field of from investment disputes) required the adaptation of the book value method to a wider range of situations, the classical book value method was refined into a more elaborated valuation tool, named ‘adjusted book value’ method, which is analysed below.

2.2.4.1 Concept

Pursuant to the IVS, the adjusted book value (‘ABV’) is a distinct type of book value, namely ‘the book value that results when one or more asset or liability amounts are added to, deleted or changed from the reported book amounts’.¹²⁹ According to the legal doctrine, ABV is the result of the calculation of the difference between an investment’s total net assets and total liabilities, in both cases adjusted to their market values.¹³⁰ The adjusted book value method refers to the valuation instrument used to establish ABV.

The ABV method aims at establishing, starting from the book values recorded in accounting documents, the value of an investment by reducing the potential differences between the market value and the book value applicable in case of the assets and liabilities comprising the respective investment. The adjusted book value is aimed at remedying the shortcomings of the book value method (related to establishing investment value on the basis on the information offered only by historic registrations in accounting books)¹³¹ by adjusting (*i.e.*, adding, deleting or amending), based on economic grounds, the value under which certain assets and liabilities are recorded in the financial documents of an investment.

2.2.4.2 Adjustments

The valuation doctrine notes that the adjustments operated under ABV are made primarily in order to match the assets’ value registered in financial documents with the

¹²⁹ IVS, Eighth Edition, 2007, Guidance Note 6 (Business Valuation), para. 3.1, p. 228.

¹³⁰ Kantor, *supra* note 11, at 231.

¹³¹ Ripinsky, Williams, *supra* note 10, at 276.

value of comparable assets from the market. Such difference in value (also known, in economic terms, as ‘Tobin’s q ’, is not taken into account under the classical book value method.¹³² From this perspective, as noted by the legal doctrine, the adjusted book value brings the assets and liabilities registered in the investments’ accounting documents in line with their market value as of the valuation date.¹³³

The main types of adjustments implemented under the ABV method relate to expenses for knowledge assets and inflation rate.¹³⁴

In case of expenses for knowledge related assets (*i.e.*, investments in research and development, patent data etc.), while under the book value method such expenses would be treated as liabilities, under the adjusted book value they are regarded as values which must be capitalized,¹³⁵ because they may contribute to the success of investments.¹³⁶

In case of inflation, the adjusted book value method assumes that the values under which the assets are registered in accounting books must be amended based on the inflation rate applicable in the territory where the investment subject to valuation operates. This type of adjustment was encountered in the practice of the Iran – US Claims Tribunal, where valuations based on the ‘current net book value’ of the affected investment, adjusted so as to consider the inflation rate, have been accepted by as a starting point in the process of establishing investment value and compensation (*e.g.*, in *Sedco Inc. v. NIOC*¹³⁷).

2.2.4.3 Application

The adjusted book value has been referred to in investment arbitration in only a few cases. In *Tza Yap Shum v. Peru*, the arbitral tribunal considered that it would be appropriate to establish the value of the investment in dispute (TSG) under the adjusted

¹³² Philipp Sandner, *The Valuation of Intangible Assets* (Springer, 2010), p. 50.

¹³³ Ripinsky, Williams, *supra* note 10, at 222.

¹³⁴ T.R. Stauffer, *Valuation of Assets in International Takings* (1996), 17 Energy Law Journal, 459 *et seq.*

¹³⁵ Philipp Sandner, *supra* note 132, p. 50.

¹³⁶ Marboe, *supra* note 9, at 274.

¹³⁷ *Sedco Inc. v. NIOC*, Final Award, 15 Iran – US Claims Tribunal, 1987, 23, para. 297.

book value method. The tribunal observed that the investment did not have an adequate track record which would allow its qualification as a going concern (as TSG had operated for only approximately two years), and consequently decided that the DCF method proposed by the claimant for the valuation of the investment would be inapplicable. Thus, in its award, the tribunal rejected the claimant's request to award damages calculated on the basis of the DCF method, and instead agreed with Peru's arguments that the appropriate standard of compensation was based on the investment's adjusted book value. Ultimately, the tribunal decided that compensation should be based on TSG's adjusted book value, amounting to US\$ 786,306.24,¹³⁸ without particularly nominating in the award the types of adjustments applied in order to reach the adjusted book value of the investment.

2.2.4.4 Distinction between Adjusted Book Value (ABV) and Adjusted Present Value (APV)

The adjusted book value (ABV) must not be confused with the adjusted present value (APV). While the adjusted book value is a method for the valuation of investments at the centre of arbitral disputes which mainly considers the adjusted accounting value of assets held by investments (diminished by the value of liabilities), the adjusted present value is an income based valuation method which takes into account the present value of the future income which would be obtained by investments during its usual activities. As explained in chapter 4, section 4.2.1, under the APV, the prospected cash flows to be generated by an investment are calculated, and then discounted by the discount rates applicable if the firm would be financed only through equity contributions.¹³⁹

¹³⁸ *Tza Yap Shum v. Republic of Peru*, ICSID Case No. ARB/07/6 (China/Peru BIT), Final Award on Merits from 7 July 2011, paras. 261-273. For details, also see case report by Kenneth Juan Figueroa, available online at <http://italaw.com/documents/TzaYapShumAwardIACLSummary.pdf> (accessed on 6 September 2013).

¹³⁹ John Graham, Scott B. Smart, William L. Megginson, *Corporate Finance: Linking Theory to What Companies Do* (3rd Edition, Cengage Learning, 2010), p. 468.

2.3 Replacement Value Method

2.3.1 Concept

The replacement value (also known as the replacement cost) represents the monetary equivalent of replacing an asset or an investment with another asset or investment having the same features. The replacement value method is the valuation instrument (subsumed to the asset based approach) which assesses the value of investments based on the costs required to replace an asset or an investment which was destroyed or taken from its owner with another asset or investment with the same characteristics.¹⁴⁰

In case of valuing investments, the costs of several types of individual assets are computed for the purposes of establishing replacement value. One category of costs corresponds to the so-called ‘hard assets’ (or tangibles), such as machinery, land, buildings, inventories etc.¹⁴¹ Another category of costs corresponds to the ‘soft assets’ (or intangibles), such as costs with marketing activities, creating a position in the market, training of people, research and development.¹⁴²

There are two main perspectives towards calculating replacement value. Under the first perspective, replacement value is calculated by reference to the cost necessary to substitute the asset or investment subject to valuation with an asset or investment having the same condition (*i.e.*, with a similar degree of depreciation and in a comparable physical condition). This is the perspective included in the World Bank Guidelines, which define the replacement value as ‘the cash amount required to replace the individual assets of the enterprise in their actual state as of the date of the taking’.¹⁴³

The second perspective indicates that replacement value is equal to the value required to substitute the investment or asset subject to valuation with its modern equivalent, or

¹⁴⁰ Dick Welch, Olivier Fremond, *The Case-by-Case Approach to Privatization. Techniques and examples, The International Bank for Reconstruction and Development* (World Bank Publishing, 1998), p. 34.

¹⁴¹ Stanley Foster Reed, Alexandra Reed Lajoux, H. Peter Nesvold, *The Art of M & A: a Merger, Acquisition, Buyout Guide* (4th Edition, McGraw-Hill Professional, 2007), p. 104.

¹⁴² Ibid, p. 104.

¹⁴³ The World Bank Guidelines on the Treatment of Foreign Indirect Investment, Guideline IV:6.

even with new assets of the same type. This standpoint is reflected, among others, by the IVS, which refer to ‘replacement cost’ in multiple cases. A general definition of the replacement cost is provided under the section regarding the Concepts Fundamental to Generally Accepted Valuation Principles, pursuant to which ‘a replacement cost estimate envisions a modern equivalent of comparable utility, employing the design, technology and materials that are currently used in the market’.¹⁴⁴ More specific features are included in IVS Glossary of Terms, where the replacement cost is referred to as:

The cost of replacing an asset with an equal satisfactory substitute asset; normally derived from the current acquisition cost of a similar asset, new or used, or of an equivalent productive capacity or service potential. Replacement cost assumes the use of modern materials, techniques and design.¹⁴⁵

While this definition admits that the replacement cost may be determined by reference to the acquisition cost of a new or used asset similar to the asset under valuation, the main assumption for such assessment is the use of modern assets, similar to the ones subject to valuation, for the purposes of establishing the replacement value.

The predisposition expressed by the IVS that the value of similar modern assets must be taken into account for the purposes of establishing the replacement value is even more straightforward in the context of valuation of intangible assets and valuation of businesses, where the IVS use the concept of ‘replacement cost new’. ‘Replacement cost new’ is defined as ‘the current cost of a similar new item having the nearest equivalent utility as the item being appraised’.¹⁴⁶ This concept is the expression of a so-called ‘old for new’ approach¹⁴⁷, and is grounded on the fact that, in some instances, a used item cannot be replaced by a similar used item, because such used item is not available on the market. In such cases, the value of a new item of the type and features

¹⁴⁴ IVS 2007, *Concepts Fundamental to Generally Accepted Valuation Principles* (GAVP), para. 4.11, p. 27.

¹⁴⁵ IVS 2007, *Glossary of Terms for International Valuation Standards*, p. 405.

¹⁴⁶ IVS, International Valuation Guidance Note 6 (*Business Valuation*), para. 3.35 (p. 232) and International Valuation Guidance Note 4 (*Valuation of Intangible Assets*), para. 3.20 (p. 205).

¹⁴⁷ Marboe, *supra* note 9, at 286.

of the old one must be taken into account for the purposes of establishing replacement value.

Another specific feature is that replacement value method does not measure the value of an investment based on the expected financial benefits to be generated by the respective investment.¹⁴⁸ For this reason, the replacement value method is rarely used by prospective investors seeking to acquire an existing operating business, as the monetary equivalent of the assets purchased during the process of setting-up and developing a business is not automatically an accurate indicator of its future economic results or profitability. Also, the replacement value method establishes the value of investments based on the principle that an investment may be simply reconstructed if assets of similar utility are purchased.¹⁴⁹ However, certain intangibles (such as goodwill, commercial relationships and business opportunities) are unique and irreplaceable, and thus may not be taken into account appropriately within a replacement value calculation.¹⁵⁰

2.3.2 Recognition and Application in Investment Arbitration

As noted by the legal doctrine,¹⁵¹ the replacement value method has been rarely used in international arbitration cases in particular and in international disputes in general. Although the total number of cases when the replacement value method was applied is limited, the method was endorsed by a large variety of courts and tribunals, including the International Court of Justice (ICJ), the Iran-US Claims Tribunal, the United Nations Compensation Commission (UNCC) and ICSID tribunals, as detailed below.

2.3.2.1 Early Application: the Corfu Channel Case

One of the first instances when the replacement cost was deemed adequate for the calculation of the value of property destroyed by a state's actions is the Corfu Channel

¹⁴⁸ Dick Welch, Olivier Fremond, *supra* note 140, at 34.

¹⁴⁹ For details, Theodore E Keeler, *Railroads, Freight and Public Policy. Studies in the Regulation of Economic Activity* (Brooking Institution Press, 1983), p. 8.

¹⁵⁰ Ripinsky, Williams, *supra* note 10, at 219-220.

¹⁵¹ *Ibid*, at 220.

Case.¹⁵² In this dispute, the United Kingdom of Great Britain and Northern Ireland filed suit against the Republic of Albania before the ICJ, with the aim of being compensated for the damages caused to the British ships HMS Saumarez and HMS Volage by the explosions occurred on 22 October 1946 in a minefield from the Albanian waters of the Corfu Strait. The claimant had two main heads of claims: one for the total loss of the destroyer Saumarez, and another one for the damages caused to the destroyer Volage.

In relation to the total loss of the ship HMS Saumarez, the ICJ agreed that the compensation payable by Albania must reflect the replacement value of the ship. The court noted that the UK Government estimated a damage of £700,087, which represented '*the replacement value of the ship at the time of its loss in 1946 (after deducting the value of usable parts – equipment, scrap) and the value of stores that must be considered as lost*'.¹⁵³ The ICJ agreed with this estimate and decided that 'the true measure of compensation in the present case' is 'the replacement cost of the Saumarez at the time of its loss.'¹⁵⁴

2.3.2.2 The 'Old-for-New' Standard: Practice of the Iran-US Claims Tribunal

Subsequent to the abovementioned application, the replacement value method was involved and detailed in the practice of the Iran-US Claims Tribunal.

In the case of *Oil Fields of Texas v. Iran*, the tribunal awarded the claimant the replacement value of drilling equipment retained by Iran, and decided that the most appropriate method of establishing the value of the claimant's investment was the replacement value method. Such valuation method was applied by reference to the value required to procure new equipment which would substitute the equipment previously held by the claimant, although the claimant's equipment had been already used (the '*old-for-new*' standard). In its decision, the tribunal stated as follows:

¹⁵² The Corfu Channel Case (*United Kingdom v. Albania*), *Merits*, ICJ Reports 1949.

¹⁵³ The Corfu Channel Case (*United Kingdom v. Albania*), *Assessment of the Amount of Compensation*, ICJ Reports 1949.

¹⁵⁴ The Corfu Channel Case (*United Kingdom v. Albania*); *Assessment of Compensation*, International Court of Justice, 15 December 1949, available at <http://www.unhcr.org/refworld/docid/402398c84.html> (accessed on 4 June 2013).

The question whether the equipment at issue was used or new is not as such determinative as to its value. Rather, as the Claimant seeks and is entitled to its replacement value, what has to be determined is the amount it would have cost to replace the three blowout preventers that had been leased to and were retained by NIOC, based on the market conditions for such equipment at the time. The evidence shows that as of the beginning of July 1979, the equipment in question was in great demand and that new equipment of the type leased under the Lease Agreement was not readily available. There is evidence that in 1979, one would have to wait eighteen months to obtain a new blowout preventer.¹⁵⁵

As noted in a dissenting opinion issued by one of the arbitrators called to decide upon the dispute, the option of assessing the potential replacement of old and used equipment with new one (in disregard of the actual condition of the equipment at the centre of the dispute) raised the question if the claimant could be unjustly enriched as a result of the application of the such ‘old-for-new’ standard.¹⁵⁶ However, in this case, the majority of the arbitral tribunal’s members agreed that establishing the value of old and used equipment by reference to the potential acquisition cost of new similar equipment was equitable and in line with the common practice of insurance companies.¹⁵⁷ In this respect, the tribunal noted that the amount actually paid by an insurance company when a blowout preventer similar to the ones at the centre of the dispute was destroyed by fire was equal to the value of a new blowout preventer.¹⁵⁸

2.3.2.3 The ‘Old-for-Old’ / ‘New-for New’ Standard of the United Nations Compensation Commission

In order to avoid situations when the compensation established based on investments’ replacement value would trigger the unjust enrichment of the claimants by granting them the value of new items when the claimants were actually deprived of used assets, certain international law fora have issued specific guidelines on the application of the

¹⁵⁵ *Oil Fields of Texas v. Iran*, 12 Iran-US Claims Tribunal (1986), 308, para. 44.

¹⁵⁶ *Oil Fields of Texas v. Iran*, Dissenting Opinion Mostafavi, 12 Iran-US Claims Tribunal (1986) 324, 334.

¹⁵⁷ In spite of this, in other cases, the Iran-US Claims Tribunal departed from the ‘old-for-new’ standard and assessed the claimants’ investment starting from the ‘depreciated replacement cost’ calculated based on the net book value of the assets subject to valuation (*e.g.*, *Aminoil v. Kuwait*, 21 International Law Materials (1982) 976, Award of 24 March 1982, para. 175 *et seq.*).

¹⁵⁸ *Oil Fields of Texas v. Iran*, 12 Iran-US Claims Tribunal (1986), 308, para. 45.

replacement value method. When referring to methods of assessing value of tangible assets, Decision No. 9 of the Governing Council of the UNCC states that:

15. Depending on the type of asset and the circumstances of the case, one of several valuation methods may be used. Methods typically used to value tangible assets are book value and replacement value. [...] Replacement value is considered to mean the amount required to obtain an asset of the same kind and status as the asset damaged or lost. Replacement value would not normally allow for replacement of an old item with a new one.¹⁵⁹

Thus, the ‘old-for-new’ principle (as mentioned above by reference to the case of *Oil Fields of Texas v. Iran*) has evolved into a standard which can be referred to as either ‘old-for-old’ or, if the case, ‘new-for-new’. Although the wording used by the UNCC may be interpreted as also making reference to some exceptional instances when the replacement of an old item with a similar new item would be acceptable for the purposes of investment valuation, the general tendency indicated by the above decision is that replacement value must be assessed by taking into account the value of an asset in the same condition with the one being valued. However, to our knowledge, no actual application of the principle expressed by UNCC with respect to the replacement value method has actually occurred in investment disputes.

2.3.2.4 ICSID Practice

The ICSID practice recognised that the replacement value method may be used for the valuation of investments at the centre of an international dispute. By way of example, in the case of *Vivendi Universal S.A. v. The Argentine Republic*, the arbitral tribunal stated that:

[...] Claimants did not advance or rely upon generally accepted alternative means of calculating [...], such as [...] “replacement value” – the amount necessary to replace the investment prior to the injurious acts [...].¹⁶⁰

¹⁵⁹ Decision No. 9 of the Governing Council of the United Nations Compensation Commission, UN Doc S/AC.26/1992/9, available at: <http://translex.uni-koeln.de/output.php?docid=800800&markid=965000> (accessed on 22 January 2014).

¹⁶⁰ *Compañía De Aguas Del Aconquija S.A. and Vivendi Universal S.A. v. The Argentine Republic*, ICSID Case No. ARB/97/3, Award of 20 August 2007, para. 8.3.15.

The ICSID tribunal in *Sistem Mühendislik İnşaat Sanayive Ticaret A.Ş. v. Kyrgyz Republic* also referred to the replacement value method as one of the possible tools for assessing the value of the investment at the centre of the dispute as follows:

The Appropriate Method of Valuation

160. The “replacement value” approach to valuation looks to what the investor has put in, not what the investor could expect to derive from the investment – at what the investment cost rather than at what it was worth.¹⁶¹

Despite endorsements expressed by ICSID tribunals with respect to the possibility to use the replacement value method for the valuation of investments, there are only a few ICSID cases when parties calculated the value of their investments based, *inter alia*, on the replacement value/cost of certain assets¹⁶² or parts of their investments,¹⁶³ and no public records of ICSID cases when the replacement value method was actually selected by tribunals for assessing investment value.¹⁶⁴

¹⁶¹ *Sistem Mühendislik İnşaat Sanayive Ticaret A.Ş. v. Kyrgyz Republic*, ICSID Case No. ARB(AF)/06/1, para. 160.

¹⁶² For instance, in the ICSID case of *Bernardus Henricus Funnekotter and Others v. The Republic of Zimbabwe*, ICSID CASE NO. ARB/05/6, Award of 22 April 2009, the claimants requested to be compensated for the expropriation of several farms they owned in Zimbabwe. In this case, the respondent’s valuation expert, Mr. Sifenali Moyo, calculated the cost of several installations pursuant to the replacement value method. The ICSID tribunal noted as follows:

‘129. [...] Mr. Moyo evaluates first the arable land as such and then the permanent improvements made to the land, such as homestead, compound housing, other farm buildings, plantations, fencing, cattle, handling facilities, greenhouses or roads. He proceeds to this last valuation in calculating the Current Replacement Costs of those installations in 1999/2000 and in applying to those costs a depreciation rate. At the hearing, he justified this approach by reference to Zimbabwe domestic law.’

However, the ICSID tribunal decided not to rely on the calculations made by the respondent’s expert (which established an overall value of EUR 872,947 for all properties involved) and ultimately decided to award the claimants the ‘market value of the whole farm at the time of expropriation’ (para. 130) amounting to EUR 8,220,000 plus interest (para. 148).

¹⁶³ *Iberdrola Energía S.A. v. Republic of Guatemala*, ICSID Case No. ARB/09/5, paras. 58 and 228, where the concept of ‘New Replacement Value’ was used.

¹⁶⁴ Nonetheless, it is arguable that there are cases when the ICSID tribunals have actually applied the replacement value method without expressly referring to it within arbitral awards. This might be the case of international investment disputes where ICSID tribunals applied an asset based valuation method for the implementation of the reparation standard pursuant to which the compensation to be granted to an investors should ‘re-establish the situation which would, in all probability, have existed if that act [of the host state] had not been committed’ (as expressed by the Permanent Court of Arbitration, in the *Chorzow Factory Case (Germany v. Poland)*), and consequently, such compensation should place the affected investor in the same position that it would enjoy if the host state’s interference had not occurred.

2.4 Liquidation Value Method

2.4.1 Concept

Under the liquidation value method, the value of an investment is indicated by the estimated proceeds which would result from the sale, during liquidation proceedings (and not in the ordinary course of business¹⁶⁵), of the separate assets comprising the investment subject to valuation, after the liabilities attributable to the respective investment are paid.¹⁶⁶ In addition to taking into account the individual value of assets and liabilities pertaining to the investment, the liquidation value method also considers liabilities and costs associated with the liquidation process,¹⁶⁷ which are also deducted from the value of the net assets for the purposes of obtaining the final liquidation value.

This perspective is reflected by the World Bank Guidelines on the Treatment of Foreign Direct Investment, which state that ‘liquidation value means the amounts at which individual assets comprising the enterprise or the entire assets of the enterprise could be sold under conditions of liquidation to a willing buyer less any liabilities which the enterprise has to meet’.¹⁶⁸ Similarly, the IVS emphasize the fact that the liquidation value refers to the case when, in liquidation, a group of assets used collectively in a business are being presented for sale and sold individually and not jointly.¹⁶⁹ The premise of assets being sold on a piecemeal basis (not as an assembly of assets), during liquidation proceedings, contemplates that such assets will experience less than normal exposure to their relevant secondary market.¹⁷⁰

¹⁶⁵ *Black’s Law Dictionary* (8th Edition, Thompson West, 2004), Brian A. Garner (Editor), at 1587.

¹⁶⁶ Tim Koller, Marc Goedhart, David Wessels, *Valuation: Measuring and Managing the Value of Companies* (4th Edition, John Wiley & Sons, 2005), p. 211.

¹⁶⁷ Jay Fishman, Shannon Pratt, William Morrison, *Standards of value: theory and applications* (John Wiley & Sons, 2007), p. 29.

¹⁶⁸ World Bank Guidelines on the Treatment of Foreign Direct Investment, Art. IV (*Expropriation and Unilateral Alterations or Termination of Contracts*), clause 6.

¹⁶⁹ IVS, Standard 2 (*Bases Other Than Market Value*), para. 6.9.2, p. 92.

¹⁷⁰ Shannon Pratt, *The lawyer’s business valuation handbook: understanding financial statements, Appraisal Reports and Expert Testimony* (American Bar Association, 2000), p. 11.

The liquidation value may be obtained by reference to either a forced sale or an orderly sale. In the first case, *i.e.*, of a forced sale, also referred to as ‘distressed liquidation’, the liquidation of individual assets considers a scenario when a potential seller is compelled by circumstances to sell (*e.g.*, it is undergoing bankruptcy) and for this reason a sufficient marketing period or effort is not possible.¹⁷¹ When compared to the regular life of an enterprise and its usual course of business, a forced sale is a rather abnormal situation when time pressures and financial constraints may impact the value under which assets are sold.¹⁷² In this context, a potential interested buyer would have the advantage of knowing that the seller is compelled to engage in the sale, and may use this to its advantage, thus diminishing the amount received by the seller as a result of the sale.¹⁷³

The second case, (*i.e.*, of an orderly sale, which is endorsed, *inter alia*, by the IVS), implies a scenario in which the investment’s separate assets are sold after appropriate marketing,¹⁷⁴ therefore at a slower pace. Orderly liquidations may require several months to create interest in the prospective sale, as well as additional expenditures with marketing activities and maintenance of the business and assets in a proper state, until the liquidation sale actually occurs.¹⁷⁵

Due to the specific nature of the forced sale and orderly sale, in most cases there is dissimilarity between results which may be obtained after the sale of assets in a forced sale, carried out within a short period of time, and results of an orderly sale preceded by appropriate marketing.¹⁷⁶ While the liquidation value obtained for an orderly sale valuation scenario may be similar with or close to the market value, the liquidation value estimated in the context of a forced sale may be far lower, because of the higher ‘distress

¹⁷¹ IVS, *supra* note 170.

¹⁷² Erich Helfert, *Financial analysis: tools and techniques: a guide for managers* (McGraw Hill, 2001), p. 360.

¹⁷³ *Ibid.*

¹⁷⁴ IVS, *supra* note 169, p. 92.

¹⁷⁵ Harlan Platt, *Principles of corporate renewal* (2nd Edition, University of Michigan, 2004), pp. 260 – 261.

¹⁷⁶ Joseph Schram, Jr., *Real Estate Appraisal* (2nd Edition, Rockwell Publishing Company, 2006), p. 38.

discount¹⁷⁷ applied by the valuator. For instance, in the US, while distressed liquidations generate an average of approximately fifteen cents per dollar of book value, orderly liquidations may generate up to sixty or seventy cents per dollar,¹⁷⁸ which explains why distress liquidation values are generally lower than orderly liquidation values.¹⁷⁹

In view of the above, a part of the economic doctrine affirms that, among all measures of value, the liquidation value estimated in the context of a forced sale is likely to be the lowest value obtainable for the assets comprising an investment.¹⁸⁰ This is however arguable, especially in the context of companies which incur losses (and considering that such losses accumulate over time), where a DCF calculation (which assumes the ongoing and future operation of an investment and calculates the aggregate value of all cash flows and losses which may be incurred by such investment during a foreseeable reference period) may trigger even lower results when compared with the liquidation value obtained in a forced sale scenario. As also explained by the Uniform Standards of Professional Appraisal Practice (USPAP) in the Standards Rule 9-3, in particular circumstances, the valuation results obtainable under a liquidation scenario could be higher than in a scenario of continued operation:

In developing an appraisal of an equity interest in a business with the ability to cause liquidation, an appraiser must investigate the possibility that the business enterprise may have a higher value by liquidation of all or part of the enterprise than by continued operation as is. If liquidation of all or part of the enterprise is the indicated premise of value, an appraisal of any real property or personal property to be liquidated may be appropriate.¹⁸¹

Similarly, a valuation based on the liquidation value method may lead to higher results than if the book value method is applied for the same investment. This could be the case

¹⁷⁷ Ripinsky, Williams, *supra* note 10, at 225.

¹⁷⁸ Harlan Platt, *Principles of corporate renewal* (2nd Edition, University of Michigan, 2004), p. 261.

¹⁷⁹ Ripinsky, Williams, *supra* note 10, at 224, footnote 181.

¹⁸⁰ M. Y. Khan, P. K. Jain, *Management Accounting and Financial Analysis* (2nd Edition, Tata McGraw Hill Publishing, 2007), Chapter 16 (Business Valuation), para. 16.4 (*Management Accounting and Financial Analysis*).

¹⁸¹ Uniform Standards of Professional Appraisal Practice (USPAP), 2008-2009 Edition, available at <http://www.appraisalmanagementcompany.net/docs/USPAP.pdf> (accessed on 16 November 2013).

when the value of the land owned by a company, which is reflected in the accounting books under its acquisition value, increases over time. Following such increase, the value which may be obtained for the same land during liquidation proceedings commenced several years after the acquisition date may be much higher than the initial acquisition value.¹⁸² Nonetheless, this situation may be encountered in a limited number of cases, because in most circumstances the liquidation value is lower than the book value (as reflected in the accounting documents) or, in extreme cases, the liquidation value of certain assets may be even equal to their value as scrap or raw materials, and would need to be even further diminished by the expenses incurred during liquidation proceedings.¹⁸³

2.4.2 Recognition and Application in Investment Arbitration

2.4.2.1 Recognition in Principle and Actual Application

The liquidation value method is not often used in business valuation in general,¹⁸⁴ and this trend is also reflected in the practice of international investment tribunals. The seldom application of the liquidation value method in investment arbitration appears to be caused by the lack of appropriate factual circumstances under which the method may be validly applied, and not by a reluctance of tribunals towards this method. On the contrary, the possibility to apply the liquidation value method was expressly recognised in investment disputes. For instance, in *Vivendi Universal S.A. v. The Argentine Republic*, the tribunal stated that:

Until their closing argument and Post-Hearing Brief, Claimants did not advance or rely upon generally accepted alternative means of calculating fair market value, such as “book value” – the net value of an enterprise’s assets, “investment value” – the amount actually invested prior to the injurious acts, [...], or

¹⁸² John Graham, Scott Smart, William Megginson, *Corporate Finance: Linking Theory to What Companies Do* (3rd Edition, Cengage Learning, 2012), p. 143.

¹⁸³ Ibid, p. 144 – it is mentioned that this can be the case of custom-made, highly specialized industrial equipment or machine tools which have been already used, and for which a potential buyer would be very difficult or impossible to identify.

¹⁸⁴ Peter Hunt, *Structuring Mergers & Acquisitions: A Guide to Creating Shareholder Value* (Aspen Publishers, 2009), p. 49.

“liquidation value” – the amount a willing buyer would pay a willing seller for the investment in a liquidation process.¹⁸⁵

Apart from endorsing the liquidation value, the tribunal in *Vivendi Universal S.A. v. Argentine Republic* also provided a concise definition of the concept, in line with the economic doctrine and the World Bank Guidelines. In spite of this, the tribunal decided not to apply the liquidation value method for the purposes of establishing the value of the affected investment, and awarded the value of the amounts actually invested by the investor (*i.e.*, the ‘investment value’ of the concession), which it considered ‘to offer the closest proxy, if only partial, for compensation sufficient to eliminate the consequences of the Province’s actions’.¹⁸⁶

One of the first cases when the liquidation value method was actually applied is *Sedco v. IMICO* from the practice of the Iran – US Claims Tribunal. In this case, the claimants (Sedco Inc. from Texas, USA and its subsidiary from Panama – Sedco International S.A.) requested to be compensated for the alleged taking by Iran of the shares owned by the claimants in the Iranian privately-held joint stock company Iran Marine Industrial Co. (‘IMICO’) (a shipyard, marine repair and warehouse facility¹⁸⁷) and for the taking of two promissory notes issued by IMICO to the claimants. The claimants alleged that they held, directly and indirectly, 81% of IMICO’s shares and requested compensation for the expropriation based on the liquidation value of their shareholding interests. In this respect, the tribunal noted as follows:

58. In its pleadings and at the Hearing the Claimant made it clear that it does not seek to recover the “going concern” value of its investment in IMICO. Rather, it seeks a share of IMICO’s dissolution value, which it proposes to determine by calculating the value of IMICO’s fixed assets, accounts receivable, and liquid assets on the date of expropriation and subtracting IMICO’s liabilities on that date.

¹⁸⁵ *Compañía De Aguas Del Aconquija S.A. and Vivendi Universal S.A. v. The Argentine Republic*, ICSID Case No. ARB/97/3, Award of 20 August 2007, para. 8.3.15.

¹⁸⁶ *Ibid*, para. 8.3.13.

¹⁸⁷ *Sedco v. IMICO*, 21 Iran – US Claims Tribunal (1989) Rep. 31, Award No. 419-128/129-2 of 30 March 1989, para. 58.

The Tribunal agrees that this basic approach is appropriate to determine IMICO's value in the circumstances of this Case, but it must be carried out in a way that fairly assesses IMICO's probable liabilities [...].¹⁸⁸

The tribunal further noted the 'apparently limited market for the sale of most of the shipyard's fixed assets at issue and the likely difficulty in disposing of these assets given the departure almost a year earlier of all of the company's expatriate management',¹⁸⁹ as well as the fact that the investment's assets might have had only 'few other uses'.¹⁹⁰ In consideration of such matters, the tribunal departed from assessing investment value based on book values (which were nonetheless considered as a starting point for the valuation of fixed assets such as machinery, buildings and various technical equipment¹⁹¹), and took into account the values which would have been obtained for the sale of the investment's inventory to potential interested buyers during a potential divestiture process, thus actually determining the liquidation value of the affected investment.¹⁹²

Although the tribunal also referred to the market value within the award, the legal doctrine agrees that it actually applied the liquidation value method.¹⁹³ One of the reasons for such view derives from the fact that the tribunal sought to assess the potential dissolution values¹⁹⁴ which might have been obtained for the assets comprising the investment,¹⁹⁵ and from the resulted amount it deducted the aggregate value of the investment's liabilities. This mechanism corresponds to an orderly liquidation scenario where the tribunal applied several downward adjustments (for obsolete stocks, apparently inflated original cost of IMICO's buildings, damages incurred by IMICO's assets, reluctance of potential buyers) and finally decided to award the claimants more

¹⁸⁸ Ibid.

¹⁸⁹ Ibid.

¹⁹⁰ Ibid, para. 60.

¹⁹¹ Ibid, para. 59. For a further analysis, please see Marboe, *supra* note 9, at section 9. 291.

¹⁹² Ibid.

¹⁹³ Ibid.

¹⁹⁴ The term of 'dissolution value' is expressly mentioned in *Sedco v. IMICO*, 21 Iran – US Claims Tribunal (1989) Rep. 31, Award No. 419-128/129-2 of 30 March 1989, para. 1.

¹⁹⁵ Marboe, *supra* note 9, at 291.

than US\$ 16.7 million as compensation pertaining to the value of the affected investment.¹⁹⁶

The liquidation value method was also involved in *Sedco v. NIOC and Iran*, in which case the tribunal decided the following:

267. Claimant does not use ‘liquidation value’ in the strict accountancy sense, as it does not request that we attempt to reconstruct what it might have recovered had SERIDAN actually undergone liquidation proceedings in November 1979. Rather it requests that we assume ‘the winding up of SERIDAN’s affairs and the disposition of its assets [...] on the open market,’ presumably with no discount from the market value of the assets as might occur in actual distress liquidation circumstances. We agree that this is a fair measure of value in this Case.¹⁹⁷

In the abovementioned dispute, the tribunal admitted that the value of the investment may be calculated based on the assumption that SERIDAN’s businesses would undergo a winding-up procedure (*i.e.*, a liquidation process¹⁹⁸). Also, it assessed the implications arising from the distinction between (i) the value of assets on the open market, ‘presumably’ with no discount from the market value; and (ii) the value of assets in distress liquidation circumstances, with a discount from the market value. The tribunal decided that in the particular case of SERIDAN, no distress discount needed to be applied when calculating the value of the business in a winding-up scenario, and as a result the value obtainable for the assets at stake in a liquidation case matched the market value of the same assets.

The abovementioned reasoning of the tribunal raises the more general question of whether it would be more appropriate to regard the liquidation value method as a method pertaining to the market based approach, rather than to the asset based approach. In this respect, it is relevant that the liquidation value reflects the value that might be obtained during a hypothetical sale (either orderly or forced) for individual assets which

¹⁹⁶ *Sedco v. IMICO*, 21 Iran – US Claims Tribunal (1989) 31, Award of 30 March 1989, para. 61 – the precise amount is US\$ 16,773,400.90 plus simple interest at the rate of 9.0 percent per annum.

¹⁹⁷ *Sedco, Inc v. National Iranian Oil Company & Iran*, Iran-US Claims Tribunal, Award of 2 July 1987, 15 Iran-US CTR 23, para. 267.

¹⁹⁸ For details, please refer to <http://www.investopedia.com/terms/w/windingup.asp#axzz1qjIwNMxM> (accessed on 12 March 2013).

comprise an investment. Therefore the market forces (either hypothetical or concrete) are the ones which determine the liquidation value, although the context (a liquidation process) and the valuation object (an investment which is, in principle, in financial difficulties) are specific to the case of a liquidation value calculation. In consideration of these circumstances, it can be affirmed that the value obtainable on the market, as a result of liquidation proceedings involving a company in financial difficulties, is in fact a distinct type of value, which could also be referred to as ‘distressed market value’ alternatively to the recognized and broad concept of ‘liquidation value’.

2.4.2.2 Particular Application in Cases of Indirect and Partial Expropriation

The liquidation value method has a particular application in cases of partial expropriation (*i.e.*, expropriation following which the investor still retains the ownership over part of its investment) or indirect expropriation (*i.e.*, when the investor retains formal ownership title over its investment, but is prevented from using it because of negative interference attributable to the host state, usually of a regulatory nature).

In such cases, arbitral tribunals can use the liquidation value method in an indirect manner for the purposes of assessing the value of the expropriated part of the investment, and as a result, the compensation payable to the foreign investor. This involves a three-stage process. First, the overall value of the investment made by foreign investors is calculated by using one of the other generally recognised valuation methods compatible with the investment subject to valuation (*e.g.*, the sales comparison or discounted cash flow (‘DCF’) methods). Second, the worth of the remaining part of the investment (which is still under the formal property of the investor) is assessed by using the liquidation value method. Third, the value of the part of the investment which is under the ownership of the foreign investor (calculated pursuant to the liquidation value method) is deducted from the overall value of the investment, and thus the valuation indicates the value of the part of the investment which was expropriated. By applying this process, tribunals avoid over-compensating a claimant, as well as mitigate the possibility of double-counting the value of the part of the investment to which a claimant still has a legal ownership title.

The valuation process referred to above was used in *CME v. Czech Republic*, where the overall value of the investment at the centre of the dispute (CNTS) was assessed pursuant (primarily) through the discounted cash flow (DCF) method.¹⁹⁹ Then, from the overall value established under the DCF method, the tribunal subtracted the estimated value attributable to the part of CNTS to which the claimant had retained legal title following the state's interference (the so-called 'residual value'). The tribunal explained that the residual value included the values of CNTS's already liquidated assets and the value to be obtained in a liquidation involving CNTS's remaining assets, and decided as follows:

The residual value of CNTS as of August 5, 1999 must be deducted from the value of CNTS. The Tribunal considered the parties' positions submitted in respect of the residual value, which CNTS still had after its business had been vitiated on August 5, 1999 as a consequence of removing CNTS as the exclusive service provider for CET 21. The Tribunal agrees that the residual value includes the assets of CNTS that have been liquidated and paid to Claimant since August 5, 1999, the liquidatable value of CNTS' remaining assets minus the costs of winding up CNTS.²⁰⁰

As illustrated in the abovementioned case, the application of the liquidation value method in conjunction with other valuation methods can thus facilitate the calculation of the value attributable to the parts of the investment affected by the host state, and as a result, the level of compensation payable to affected investors in partial and/or indirect expropriation cases.

¹⁹⁹ *CME Czech Republic B.V. v. Czech Republic*, ICSID Final Award, 14 March 2003, para. 416, states that: 'This leaves the Tribunal with the DCF method and it has no hesitation in endorsing it as the one which is the most appropriate in this case. [...]'.
²⁰⁰ Ibid, para. 612.

3. THE MARKET BASED APPROACH FOR THE VALUATION OF INVESTMENTS IN ARBITRAL DISPUTES

The market based approach to valuation consists of the valuation principles and instruments pursuant to which the worth of an investment is assessed on the basis on the value for which the respective investment (or parts thereof) would be sold, and respectively bought, on the open market. The market based approach therefore calculates the value of investments based on the principle that market forces – supply and demand – ultimately indicate the value which any enterprise.

Because market based approach to valuation assesses the market value of investments, the concepts of market based approach and market value are closely related. Nevertheless, although complementary, these are two distinct concepts: while the first designates the valuation methods and techniques used in the valuation process for determining the value of investments, the latter represents both the purpose and the concrete result of the valuation process. The individuality of each concept is also confirmed by the valuation sources which define and explain the two concepts, as presented below.

3.1 The Concept of Market Value

The concept of market value (also referred to as ‘fair market value’ or ‘fair value’) benefits from extensive definitions and analysis in national legislations and case law, in international treaties and investment disputes, as well as in other valuation documents of an international character. This situation is specific to the concept of market value, because the terms of ‘asset value’ and ‘income value’ (which correspondents to the types of values obtained as a result of asset based, and respectively, income based, valuations) do not benefit from similar analysis.

In international instruments, the prevalent definition of market value is provided by the IVS, pursuant to which market value is:

The estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion.²⁰¹

A similar explanation of the concept is provided by the International Financial Reporting Standards ('IFRS'), pursuant to which fair value is 'the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction'.²⁰²

Comparable definitions of market value have also been adopted in national legislations. In the US, the documents regulating the organisation and functioning of the Internal Revenue Service (the 'IRS') use the term of fair market value, which is 'the price at which the property would change hands between a willing buyer and a willing seller, neither being under any compulsion to buy or to sell and both having reasonable knowledge of relevant facts'.²⁰³ Likewise, in the UK, market value is regarded by the Capital Gains Tax and Stamp Duty Land Tax Act²⁰⁴ as the 'price for which the assets might reasonably be expected to fetch on a sale in the open market'.²⁰⁵ Similar definitions are found in the legal systems of Canada,²⁰⁶ India²⁰⁷ and several other countries.

²⁰¹ IVS 2013, IVS Framework, para. 30, at <http://standards.ivsonline.org/mod/page/view.php?id=108> (accessed on 11 January 2015).

²⁰² International Financial Reporting Standards 3, Appendix A, 'Defined terms', available at <http://eifrs.iasb.org/eifrs/bnstandards/en/ifrs3.pdf> (accessed on 5 March 2013).

²⁰³ Internal Revenue Service, Revenue Ruling 59-60; for further details, please refer to <http://www.irs.gov/businesses/small/article/0,,id=108139,00.html#8> (accessed on 7 March 2013).

²⁰⁴ A similar definition is included in the UK Inheritance Tax Act, pursuant to which 'market value' is the 'price which the property might reasonably be expected to fetch if sold in the open market at that time; but that price shall not be assumed to be reduced on the ground that the whole property is to be placed on the market at one and the same time' (UK Inheritance Tax Act 1984, section 160 IHTA, available online at http://www.hmrc.gov.uk/ihta/part_6_chapter_1/ihta160.htm#TopOfPage, accessed on 8 March 2013).

²⁰⁵ Please see the UK Capital Gains Tax and Stamp Duty Land Tax Act (1992), section 272 (1) and (2) TCGA, available online at http://www.voa.gov.uk/instructions/chapters/inheritance_tax_ch_1b/sections/section_7/frame.htm (accessed on 8 March 2013).

²⁰⁶ Please see the case of *Estate of A.M. Collings Henderson, Bank of New York v. Minister of National Revenue* (1973), (C.T.C. 636 at p. 644, as affirmed in two Court of Appeal Hearings in 1975), where 'fair market value' was referred to as '*the highest price an asset might reasonably be expected to bring if sold by the owner in the normal method applicable to the asset in question*'.

The practice of international investment arbitration indicates that the concept of market value embraced by the IVS and IFRS is successfully adopted in investment disputes. For instance, the arbitral tribunal in *Enron v. Argentine*, pointed out that ‘the notion of ‘fair market value’ is generally understood as the price at which a property would change hands between a hypothetical willing and able buyer and an hypothetical willing and able seller, absent compulsion to buy or sell, and having the parties reasonable knowledge of the facts, all of it in an open and unrestricted market’.²⁰⁸ In a comparable manner, the arbitral award in *CME v. The Czech Republic* noted that ‘the definition of fair market value has been established under international law as being the price a buyer would be willing to pay the seller under circumstances in which each party had reliable information in order to maximize its financial gain and neither party was under duress or threat’.²⁰⁹

The very similar definitions of the concept, encountered in a broad array of valuation and legal documents, indicate that the market value is a rather homogenous term which may therefore benefit from consistent interpretations throughout a large variety of fora. The common ground of the above definitions relates to the fact that market value refers to (i) the estimated amount for which an investment should exchange (ii) at a certain date (iii) between a willing buyer and a willing seller, (iv) in an arm’s length transaction (v) in which the parties act knowledgeable and without compulsion. These common elements may be regarded as guiding criteria used in the valuation practice (including in the

in the ordinary course of business in a market not exposed to any undue stresses and composed of willing buyers and sellers dealing at arm's length and under no compulsion to buy or sell. [...] These definitions are equally applicable to “fair market value” and “market value” and it is doubtful if the word “fair” adds anything to the words “market value”.’ A similar definition was adopted by the Canadian Revenue Agency (please refer to <http://www.cra-arc.gc.ca/tx/chrts/dnrs/dctnry/menu-eng.html#fmv>, accessed on 9 March 2013).

²⁰⁷ Please refer to http://www.incometaxindia.gov.in/publications/4_compute_your_capital_gains/chapter4.asp (accessed on 8 March 2013).

²⁰⁸ *Enron Corporation, Ponderosa Assets v. The Argentine Republic*, ICSID Case No. ARB/01/3, 22 May 2007, para. 361.

²⁰⁹ *CME Czech Republic B.V. (The Netherlands) v. The Czech Republic*, Award of 13 March 2003, at para. 98.

specific area of investment disputes) for the purposes of establishing the values of investments under the market based approach. Due to their importance, the elements which operationalize the market based approach to valuation and the market based methods are analysed and detailed under section 3.4 of this chapter 3.

3.2 The Concept of Market Based Approach to Valuation

The concept of ‘market based approach to valuation’ regards specific valuation methods of valuation which are aimed at calculating the market value of businesses. In the context of international investment disputes, the market based techniques originating in business valuation are employed by valuation experts and/or by arbitral tribunals for the purposes of calculating the value of investments at the centre of arbitrations.

The market based approach to valuation benefits from detailed coverage mainly in IVS 2013. IVS on Businesses and Business Interests sets forth the following key elements of the market based approach:

C15. The market approach compares the subject business to similar businesses, business ownership interests and securities that have been exchanged in the market and any relevant transactions of shares in the same business. Prior transactions or offers for any component of the business may be also indicative of value.

C16. The three most common sources of data used in the market approach are public stock markets in which ownership interests of similar businesses are traded, the acquisition market in which entire businesses are bought and sold, and prior transactions in shares or offers for the ownership of the subject business.²¹⁰

The IVS therefore define the central mechanism employed under the market based approach for the purposes of assessing value (*i.e.*, the comparison of the investment subject to valuation with similar businesses or parts thereof), as well as the types of information required for the application of the approach

²¹⁰

IVS 2013, IVS 200 Businesses and Business Interests, paras. C15 and C16, available at <http://standards.ivsonline.org/course/view.php?id=3#section-3> (accessed on 10 January 2015).

(i.e., information regarding stock prices, acquisition values for entire businesses and/or prices exchanged in previous transactions involving the business subject to valuation). From this perspective, IVS makes a clear distinction between the market based approach and market value.

Notwithstanding this distinction, because of the resemblance between the two concepts, in a number of investment arbitration cases the arbitral tribunals used the concept of market value when they actually referred to the market based approach. For instance, the tribunal in *Reineccius et al. v. Bank for International Settlements* used the concept of ‘market value’, instead of ‘market based approach’, and stated: ‘[...] there is no ground for the Tribunal to depart from the *lex specialis* applicable to the Parties and to use the international law standard which would apply market value for the shares’.²¹¹ Such instances when the term of ‘market approach’ is used to designate the market based approach are not singular. As the purpose of the present chapter 3 is to analyse the market based approach and the valuation methods pertaining to this approach, instances when tribunals used the term of ‘market value’ to designate the valuation tools used for the assessment of the value of investment are also considered herein.

3.3 Valuation Methods Pertaining to the Market Based Approach

The current section examines the principal methods used for assessing the value of an investment under the market based approach to valuation, namely the (i) share prices method; (ii) comparable sales method; (iii) partial sales method; and (iv) economic multipliers method; and (v) offerings based method, as well as the use thereof in investment arbitration cases – as detailed below.

²¹¹ *Dr. Horst Reineccius, First Eagle SoGen Funds, Inc., Mr. Pierre Mathieu and La Societe de Concours Hippique De La Chatre v. Bank For International Settlements*, Partial Award on the Lawfulness of the Recall of the privately held shares on 8 January 2001 and the applicable standards for valuation of those shares, The Hague, 22 November 2002, Para. 175 (available online at <http://www.pca-cpa.org/upload/files/EPA.pdf>, accessed on 16 June 2014).

3.3.1 The Share Prices Method

Pursuant to a report on foreign direct investment issued by UNCTAD in 2009, currently the main foreign investors are multi-national or trans-national corporations ('TNCs'), *i.e.* legal entities with affiliates in several jurisdictions (and not natural persons).²¹² In the majority of cases when TNCs seek to establish an investment in a foreign country, they use project companies incorporated in the host country where the investment will be developed, in order to carry out business activities. Such project companies are either taken over by the foreign investors by way of acquisition or privatization, or incorporated directly as subsidiaries owned, directly or indirectly, by the respective foreign investors. Therefore, the market price of shares in the corporate vehicles used for the development of foreign direct investments can provide relevant information for the calculation of the value of the respective investments.

The share prices valuation method assesses the value of investments starting from the price which would be obtained on the open market for the shares of the companies used for the setting-up and development of investments. As the companies used as corporate vehicles for investments may be both public companies (companies whose shares are transacted openly on stock exchanges) and private companies (closely-held companies, the shares of which are only purchased and sold in privately negotiated transactions), the present section examines how the share prices method can be used in case of both public companies and private companies.

3.3.1.1 Share Prices Method in Case of Companies Listed on the Stock Exchange

In a number of investment disputes, the corporate vehicles at the centre of arbitration proceedings, and which have been used for the development of investments, were companies publicly listed on stock exchanges. In cases of negative interference from host states with such listed companies, or with the stock held by investors in publicly-

²¹² United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2009: Transnational Corporations, Agricultural Production and Development*, available online at http://www.unctad.org/en/docs/wir2009_en.pdf (accessed on 26 August 2014).

listed companies, the overall value of the affected investments can be assessed, under the share prices method, by multiplying the price at which each of the company's shares is traded on the stock exchange at the valuation date, by the total number of outstanding shares of the company.

(i) Acceptance in Principle

The use of the share prices method based on prices of shares of publicly-listed companies was accepted in principle in several investment disputes for the calculation of investment value.

The arbitral tribunal in *Asian Agricultural Products Ltd ('AAPL') v. Sri Lanka* regarded the price at which the shares were traded on the stock exchange as the primary source of information for the purposes of assessing the total value of an investment. This conclusion arises from the following wording of the arbitral award:

In the absence of a stock market at which the price for Serendib's shares were quoted on January 27, 1987 (the day preceding the events which led to the destruction of the value of AAPL's investment in Serendib's capital), the evaluation of shares owned by AAPL in Serendib has to be established by the alternative method of determining what was the reasonable price a willing purchaser would have offered to AAPL to acquire its shareholding in Serendib.²¹³

Thus, in the aforementioned case, the arbitral tribunal would have applied the share prices method based on the prices of the shares on the stock exchange, if the company at the centre of the dispute was publicly listed and its stock was traded openly on the stock exchange. However, the tribunal applied 'alternative methods' for the purposes of establishing the value of the investment primarily because the Serendib shares were not traded on a public market, and therefore the application of the share prices method was impossible.

²¹³ *Asian Agricultural Products Ltd. v. Sri Lanka*, ICSID Case No. ARB/87/3, 27 June 1990, para. 96.

Similarly, the ICSID tribunal in *CMS v. Argentina* noted that ‘in case of a business asset that is quoted on a public market, that process [of assessing the value of the investment] can be a fairly easy one, since the price of shares is determined under conditions meeting the above mentioned definition [of market value]’.²¹⁴ As per the tribunal’s decision, apparently it is a ‘fairly easy’ task to determine the value of an investment listed on a public market, by multiplying the value of one share with the total number of shares. The share prices method based on the value of shares on the stock exchange is therefore clearly endorsed as acceptable in investment arbitration, and at the same time is regarded as a straightforward valuation tool.

(ii) Actual Application

In addition to investment disputes where the stock prices method is accepted in principle for the valuation of investments at the centre of arbitration proceedings, there are several cases where this method has been actually applied for the calculation of investment value and, consequently, of compensation payable to affected investors. Some of the first instances when the stock prices method has been actually used are encountered in the practice of the Iran-U.S. Claims Tribunal. A relevant case is *Khosrowshahi v. Iran*, where the claimants filed a suit against Iran²¹⁵, claiming an amount of USD 8,080,742.79 plus interest for the alleged seizure and expropriation of their shareholding interests in the Alborz Investment Corporation (‘Alborz’), the KBC Company and the Investment and Development Bank of Iran.²¹⁶

²¹⁴ *CMS v. Argentina*, para. 403, with reference to the definition of market value. The tribunal defined ‘market value’ at para. 402 as ‘the estimated amount for which a property would exchange on the date of valuation between a willing buyer and a willing seller in an arm’s-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion’.

²¹⁵ In this case, Faith Lita Khosrowshahi, Susanne P. Khosrowshahi, Marcene P. Khosrowshahi, Kayvan Khosrowshahi and Kamran Khosrowshahi, have been considered by the arbitral tribunal as having a ‘dominant and effective’ U.S. nationality. For details, please refer to *Iran-U.S. Claims Tribunal Reports*, Volume 24, Edited by J.C. Adlam, Consulting Editor E. Lauterpacht (Cambridge, Grotius Publications Limited, 1991), pp. 43-44.

²¹⁶ *Iran-U.S. Claims Tribunal Reports*, Volume 24, Edited by J.C. Adlam, Consulting Editor E. Lauterpacht, Cambridge, Grotius Publications Limited, 1991, p. 41.

When assessing the value of the claimants' interest in Alborz, the tribunal relied on the prices at which the shares in Alborz were traded on the stock exchange eight months before the expropriation.²¹⁷ The tribunal pointed out that:

[The] Tribunal finds particularly relevant the evidence relating to known trading prices of Alborz shares. Since the Tribunal's valuation precedents suppose a willing buyer and seller in order to determine the full equivalent of the property taken, a contemporaneous market price is clearly the best available evidence of the value of Alborz shares.²¹⁸

Based on the above reasoning, the tribunal decided to apply the share prices method as a starting point for establishing the value of the claimants' investment in Alborz as of the expropriation date. However, when calculating the final amount of compensation to be awarded to the claimants, the overall value of Alborz (as established pursuant to the share prices method) was subsequently reduced through the application of discount rates of 25 and 30 percent, which in the tribunal's view reflected the negative economic consequences of the Iranian revolution.²¹⁹

As indicated by part of the investment arbitration practice, because stock prices may be subject to rapid and considerable fluctuations as a result of market forces²²⁰, the information registered with respect to stock prices only as of a certain moment might not prove sufficiently accurate in order to establish the value of an investment. Starting from this, tribunals pointed out that the average value of stock prices during a longer period of time may offer more reliable data in order to correctly establish the value of a listed company. In line with this reasoning, in *Enron v. Argentine*, the ICSID tribunal concluded that 'to use the stock value of December 2001 [the

²¹⁷ Marboe, *supra* note 9, at 192.

²¹⁸ *Iran-U.S. Claims Tribunal Reports*, Volume 30, Consulting Editor E. Lauterpacht (Cambridge, Grotius Publications Limited, 1994) p. 76, para. 47.

²¹⁹ *Ibid*, para. 78. Further details are also provided by Marboe, *supra* note 9, at 193.

²²⁰ In stock exchange transactions large price fluctuations may be registered, with respect to the same stock, within the same day or even within a few hours' time.

valuation date] would result in grave distortions since at that point the unfolding crisis had led to wide speculation'.²²¹ As a result of the fact that the stock prices as of the valuation date were speculative and did not reflect market value, the tribunal decided to endorse the share prices method based on the average prices registered over a longer period of time, and decided as follows:

With regard to stock market value, the Tribunal accepts Claimants' point that when markets are illiquid or the volume of transactions is limited, market capitalization might provide distorted valuation indications. However, it is still possible to rely on this approach if longer periods of time are taken into consideration so as to determine relevant averages as suggested by the Tribunal's expert.²²²

Even though the tribunal accepted the use of share prices method based on the stock exchange quotations for the assessment of the investment's value, eventually it applied the DCF method in order to establish the investment's pre-breach value, doubled by the actual sale price method, which was used to determine the investment's value as of the date of the award (the 'current value'). The tribunal also used the stock exchange values in order to verify both the pre-breach value and the current value of the investment.²²³

Notwithstanding the above examples, in other cases, arbitral tribunals regarded the stock prices method as inaccurate for the purposes of establishing the value of the investment at the centre of the dispute. In *Reineccius et al. v. Bank for International Settlements*, the tribunal took the view that the value of shares traded on the stock exchange would not offer a

²²¹ *Enron v. Argentine*, Award, para. 425.

²²² *Ibid*, para. 383.

²²³ The arbitral tribunal preferred this approach although the claimants held that the use of stock prices should be rejected. In this respect, the arbitral tribunal held that 'In the instant case, shares in TGS are normally traded in both the Buenos Aires and New York stock exchanges. Claimants have rejected the use of the stock market value alleging principally (i) the illiquidity of TGS shares; (ii) the effects of thin markets like Buenos Aires, namely, the disconnection between stock prices and real values and the volatility of share values due to erratic macroeconomic performance.' Also refer to Ripinsky, Williams, *supra* note 10, at 411.

satisfactory basis for the assessment of the share premium, and consequently, of the overall investment value:

As for the market value method, the Report opined that, given the nature of the shares of the Bank, the various stock exchanges on which they were bought and sold, and the special position of the Bank itself, it was “an unreliable basis on which to calculate the premium”.²²⁴

3.3.1.2 Share Prices Method in Case of Private Companies

Unlike the situation of publicly listed companies (in which case the prices of their shares is freely accessible and obtainable from the stock exchanges’ public information), in most instances there is little or no publicly available data regarding the prices at which the shares in private companies (or closely-held companies) are transacted on the open market at a certain date. Pursuant to the economic doctrine, closely-held companies include closed corporations, family businesses, or incorporated partnerships and any form of business enterprise where the equity of the firm is not publicly traded, or at most is traded infrequently.²²⁵ Due to the infrequent trading, or lack of trading of the private companies’ shares, usually there is very limited data about the prices of such shares on the open market.²²⁶

The scarcity of publicly available information regarding prices of shares in private companies is not absolute, as data about such prices may be obtained by using specialized market intelligence agencies, such as Merger Market.²²⁷ The main drawback in relation to the data provided by market intelligence agencies is that their figures are in some cases not official, but is obtained from market sources, such as through interviews

²²⁴ *Dr. Horst Reineccius, First Eagle SoGen Funds, Inc., Mr. Pierre Mathieu and La Societe de Concours Hippique De La Chatre v. Bank For International Settlements*, Partial Award on the Lawfulness of the Recall of the privately held shares on 8 January 2001 and the applicable standards for valuation of those shares, The Hague, 22 November 2002, para. 196.

²²⁵ For details, please refer to Irving L. Blackman, *Valuing the privately-held business: The Art and Science of Establishing a Company’s Worth* (Rev. Ed. Chicago, Probus Publishing Company, 1992), pp. 9-10. Also, Herbert L. Jensen, *Stock Valuation Formulas for Estate and Gift Taxes* (Trusts & Estates 117), 1938, p. 238.

²²⁶ William Robert McConkie II, *Tests of Valuation Methods for Non-Public Companies*, PhD Thesis, The Florida State University, College of Business, 1995, pp. 1-2.

²²⁷ For details, please refer to <http://www.mergermarket.com>.

with CEOs, CFOs, financial sponsors and other actors involved in a certain industry.²²⁸ Consequently, although this information may be taken into account by valuation experts²²⁹ and arbitral tribunals, it is arguable if it may be indeed used successfully as conclusive and accurate evidence in investment disputes for the purposes of establishing the value of an investment.

In view of the above, the price of shares in case of private companies (and, consequently, the value of the companies) may be in most instances more difficult to establish than in case of public companies. However, under the share prices method, the value of entire private companies can be established, primarily, on the basis of prior transactions involving the shares of the private company subject to valuation. Alternatively, when prior transactions implying a private company's shares have never occurred, or when information about such prior transactions is not available, the value of private companies may also be established on the basis of data regarding public companies similar to the private company subject to valuation, as detailed below.

(i) Share Prices Method Applied based on Prior Transactions Involving Shares of Private Companies

Under the share prices method based on prior transactions involving shares of private companies, the value of an investment may be established on the basis of the price which has been actually paid, in transactions occurred prior to valuation date, for the shares in the corporate vehicle used for the development of the investment. In order to be acceptable as a relevant indicator under the share prices method, the price involved in such prior transactions must be established on an arm's length basis.²³⁰

²²⁸ <http://www.mergermarket.com/services/intelligence> (accessed on 6 March 2014).

²²⁹ By way of example, The Institute of Business Appraisers is the oldest professional society devoted solely to the appraisal of closely-held businesses. Please refer to <http://www.go-iba.org/> for further details (accessed on 15 March 2014).

²³⁰ For an analysis of the concept of 'arm's length transaction' in relation to the market based approach to investment valuation, please refer to section 3.4.4 below.

For example, in the ICSID case of *CME v. The Czech Republic*, the arbitral tribunal applied the share prices method by taking into account the price negotiated and agreed between independent entities, prior to the valuation date, with respect to the envisaged transfer of shares in the company at the centre of the dispute (namely, Ceska Nezavisla Televizni Spolecnost–‘CNTS’). The tribunal relied on the negotiated share prices, even though the envisaged transaction was not finalised, and stated that:

The Tribunal’s view is that the SBS transaction entered into between CME Media Ltd and SBS gives an objective view of the fair market value of CNTS in February/March 1999 by a third party purchaser on the basis of arms-length negotiations.²³¹

In the same case, the application of the share prices method proposed by the claimant for the valuation of CNTS based on the price involved in the acquisition of 5.8% of CNTS’ shares by CME from Dr. Zelezny (the ‘Nova Consulting Transaction’) was dismissed. The ICSID tribunal did not consider the price of the respective transaction as reflecting the market value of the shares involved, for two main reasons. The first reason related to the fact that the transaction did not satisfy the arm’s length requirement because the price involved was to a great extent influenced by Dr. Zelezny’s leverage over CNTS. Secondly, the tribunal regarded the Nova Consulting Transaction as irrelevant under the share prices method because the transaction took place two years before the valuation date and therefore the price involved was not an up-to-date reflection of the shares’ value as of the valuation date relevant for arbitration purposes. The tribunal decided that:

610. [...] the Nova Consulting transaction, which according to the Claimant established a value for CNTS in the amount of more than USD 500 million, cannot be the basis for evaluating the value of CNTS. The subject of the Nova Consulting transaction in 1997 was a minority share of 5.8% as a result of intensive negotiations between Dr. Zelezny and CME, in which negotiations Dr. Zelezny threatened to sell this share to a

²³¹

CME v. The Czech Republic, para. 514. Similarly, the ICSID tribunal pointed out that ‘the Tribunal’s assessment of the SBS / CME transaction is, that the SBS / CME merger was negotiated at arm’s-length and that the valuation of CNTS reflects the valuation of a willing buyer and a willing seller at the point of time relevant for this arbitration’ (para. 560).

questionable third party. CME decided not to permit that a third party investor to enter the CME business and bought the 5.8% share at the price requested by Dr. Zelezny. [...]

611. Further a small change of value of the Nova Consulting share would drive the CNTS 1997 value up or down with the leverage of 5,8% to 100%. The result could be totally disconnected from reality. The tribunal, therefore, cannot accept the Nova Consulting Transaction of 1997 as a basis for valuation of 100% of CNTS in 1999, which is two years later.²³²

As the ICSID tribunal accepted the valuation of CNTS based on the share prices method relying on a prior transaction executed on an arm's length basis (*i.e.*, the SBS transaction), but rejected same method applied through a prior transaction in which the buyer was constrained by the circumstances to buy the transacted shares (*i.e.*, the Nova Consulting Transaction), it may be concluded that the use of the share prices method based on prior transactions involving the shares of the investment at the centre of the dispute depends primarily on the prior's transaction qualification as an arm's length transaction, doubled by the temporal proximity between the prior transaction and the valuation date.

In line with the above reasoning, the arbitral tribunal in *SPP v. Egypt* also noted that, in order to constitute acceptable evidence for the valuation of an investment under the share prices method, a prior transaction involving shares of the investment at the centre of the dispute must be carried out on an arm's length basis. In *SPP v. Egypt*, the claimant argued that the value of the investment may be assessed on the basis of prior transactions in which SPP's shares have been sold to members of the Saudi royal family. When deciding upon the applicability of the share prices valuation method proposed by the claimant, the tribunal pointed out that:

The purchase and sale of an asset between a willing buyer and a willing seller should, in principle, be the best indication of the value of the asset. This is certainly true in the case of a perfectly competitive market having many buyers and sellers in which there are no external controls or internal monopolistic arrangements. [...]

²³²

CME v. The Czech Republic, paras. 610-611.

In the present case, however, there was a very limited number of transactions and there was no market as such for the shares that were sold. The price at which the shares were sold was privately negotiated. In these circumstances, the Tribunal does not believe that the share transactions can be used to accurately measure the value of SPP (ME)'s investment in ETDC.²³³

A noteworthy point is that the prior transactions considered as sources of information under the share prices method have already occurred when the valuation exercise is carried out, and such transaction are thus preceding the valuation date. Consequently, the data involved in such prior transactions might not reflect directly the investment's value at the valuation date. For this reason, arbitral tribunals and business valuation professionals may be required to operate adjustments to the amounts involved by the prior transactions, in order to accurately determine the corresponding value of such past transactions as of the valuation date. The actual application of such adjustments must be however made by valuation experts and arbitral tribunals, on a case-by-case basis, even though no specific guidelines have been issued in this respect by valuation or arbitration bodies.

(ii) Share Prices Method Applied based on Data regarding Similar Public Companies – the Guideline Public Company Method

In investment disputes, arbitral tribunals encounter cases when no prior transactions involving shares of a private company at the centre of arbitration can be identified. In such cases, the value of shares in the private companies used to develop investments (and the value of the investments themselves) may be calculated indirectly on the basis of data provided by a 'set of stock exchange listed comparable companies'.²³⁴

The valuation of private companies based on information regarding similar public companies has been referred to as the *guideline public company*

²³³ *SPP v. Egypt*, para. 197.

²³⁴ Matthias Meitner, *The Market Approach to Comparable Company Valuation*, Zentrum für Europäische Wirtschaftsforschung (ZEW), ZEW Economic Studies, vol. 35 (Springer, 2006), p. 8.

method²³⁵ ('GPCM'). This valuation method is grounded on the idea that the data indicating the value of public companies, apart from being more easily accessible to valuation experts and arbitrators, may also be applicable to private not-listed businesses.²³⁶ Under the GPCM, in order to assess the value of a private (not listed) company, a group of public companies similar to the one subject to valuation must be first identified. Such similar companies are referred to as 'guideline companies'. The relevant pricing indicators for the guideline companies are then obtained, and adjustments are made to such indicators, so as to reflect the risk factors and the growth prospects applicable for the private company subject to valuation in correlation with the publicly traded guideline companies.²³⁷ Finally, the value of the private company subject to valuation is established based on the data provided by the comparable public companies.

The main advantage of using GPCM is the potentially large pool of guideline companies and the significant financial information available to the valuation expert. However, in practice, it is rather difficult to identify adequate public companies that are similar enough to the investment subject to valuation in order to provide an acceptable basis for comparison.²³⁸ Another major disadvantage resides in the possible issues that may arise in relation to the subjectivity inherent to the adjustments made to the data offered by public companies, and in relation to assessing the comparability and similarity between the private company subject to assessment, and the public companies used as sources of information for valuation purposes.²³⁹

²³⁵ Jerald Pinto, Elaine Henry, Thomas Robinson, John Stowe, *Equity Asset Valuation* (John Wiley and Sons, 2007), p. 379.

²³⁶ Matthias Meitner, *supra* note 234, at 9.

²³⁷ Jerald E. Pinto, Elaine Henry, Thomas R. Robinson, John D. Stowe, *supra* note 235, at 379.

²³⁸ Frank C. Evans, David M. Bishop, *Valuation for M&A: building value in private companies*, Volume 1 of the Wiley Mergers and Acquisitions Library (John Wiley and Sons, 2001), p. 160.

²³⁹ Jerald E. Pinto, Elaine Henry, Thomas R. Robinson, John D. Stowe, *supra* note 235, at 379.

This comparability issue in relation to the application of GPCM was referred to by the US Tax Court in *Estate of Natalie M. Leichter v. Commissioner of Internal Revenue*.²⁴⁰ The court had to decide upon the value of Harlee International, Inc. ('Harlee'), a Californian closely-held corporation that operated as a wholesale distributor of futon frames, as of 23 October 1995. In order to determine the value of Harlee, an IRS expert compared the respective company with five publicly traded similar corporations, and then adjusted the relevant financial values in order to match the comparables.²⁴¹ Although the US Tax Court found out that the GPCM valuation provided by the IRS expert was 'within a reasonable range', the court decided that such valuation also had major drawbacks, most notably because the guideline companies were not similar enough to the private company subject to assessment.²⁴² The court therefore eventually did not rely on the valuation under the GPCM because of the insufficient level of similarity between the private company under valuation and the comparables chosen by the valuation expert.

A similar problem of comparability in relation to the use of the guideline public company method occurred in the ICSID case of *CMS v. Argentina*. In this instance, the ICSID tribunal accepted that, in principle, the stock prices may be used for the purposes of valuation in cases when the investment subject to assessment is a 'business that is quoted on a public market'.²⁴³ However, the tribunal noted that the company at the centre of the dispute (namely, Transportadora de Gas del Norte – 'TGN', an entity in which the claimant CMS held a controlling stake) was a private company, not listed on the stock exchange. Although the claimant invoked the possibility for TGN to be valued on the basis of the data referring to another Argentinean natural

²⁴⁰ *Estate of Natalie M. Leichter v. Commissioner of Internal Revenue*, TC Memo 2003-66, 2003 Tax Ct, Memo Lexis 66 (U.S. Tax Court March 6, 2003).

²⁴¹ Shannon P. Pratt, Alina Niculita, *supra* note 21, at 270.

²⁴² *Ibid.*

²⁴³ *CMS v. Argentina*, para. 403.

gas transporter, TGS, and to three other gas distributors which were listed on the stock exchange, the arbitral tribunal rejected such possibility. The ICSID tribunal reached the conclusion that the proposed public guideline companies did not have sufficient elements of similarity to the investment from the case at hand.²⁴⁴ Therefore, the tribunal decided not to use the guideline public company method for the valuation of the investment, but relied on the income based approach for the assessment of the investment at the centre of the dispute.

Also, in *LG&E v. Argentina*, the claimant attempted to convince the arbitral tribunal that the value of one of the private companies at the centre of the dispute (Distribuidora de Gas del Centro, hereinafter ‘Centro’), could be accurately established using the GPCM. The tribunal held that:

Based upon the opinions of their experts, Professor Eduardo Schwartz and Carlos Lapuerta, Claimants calculate the FMV of their investments in Cuyana and GasBan by using the sale price for their publicly-traded shares. The value of their investment in Centro, which is not publicly traded, was estimated from the stock price information of the three publicly-traded gas distribution companies (GasBan, Cuyana and MetroGAS).²⁴⁵

However, the respondent (Argentina) argued that ‘information on MetroGAS and GasBan is not appropriate to estimate the value of Centro given the significant differences between the companies’ business structures’.²⁴⁶ The ICSID tribunal was not convinced of the possibility of calculating the value of shares in Centro (the private company to which the arbitration related) and, consequently, the value of the investment as a whole, on the basis of the value of comparable public companies. Therefore, the tribunal eventually chose to establish the value of the company at the centre of the dispute, and the value of compensation payable to the affected investor, on the basis of the

²⁴⁴ *CMS v. Argentina*, para. 412.

²⁴⁵ *LG&E v. Argentina*, para. 14.

²⁴⁶ *Ibid*, para. 23.

‘dividends that would or could have been generated [by the investment]²⁴⁷ without any change in the tariff system’.²⁴⁸

From the above practice of investment tribunals, it may be derived that due to comparability and adjustments-related issues, the valuation of private companies under GPCM based on information regarding similar public corporations has not been fruitfully used to date in investment disputes. However, arbitral tribunals have not rejected the use of the GPCM as a matter of principle, and the absence of investment disputes involving GPCM for valuation matters appears mainly attributable to the fact that, in disputes where parties tried to argue the application of GPCM for determining the value of private companies, the conditions required by tribunals for its application (including the existence of appropriate comparable public companies) have not been fulfilled. Therefore, the possibility that GPCM be used in future cases (provided that the relevant applicability circumstances are met) may not be excluded in upcoming investment disputes.

(iii) Other Circumstances Indicating Share Prices and Value of Investments

In some circumstances (such as cases of investments implemented based on private equity), the shareholders of closely held companies may decide in advance under which conditions and at which price the shares owned by one of them in the company may be transferred to the other shareholders.²⁴⁹ This may be achieved by inserting a ‘put option’²⁵⁰ in the company’s corporate documents – either in the company’s articles of association (when the company is incorporated from the outset), merger or acquisition documents

²⁴⁷ Author insertion.

²⁴⁸ *LG&E v. Argentina*, para. 59.

²⁴⁹ William Robert McConkie II, *supra* note 226, at 4.

²⁵⁰ Pursuant to Douglas Greenwald et al. (*The McGraw-Hill Dictionary of Modern Economics*, 2nd edition, 1973), the put option gives the holder the right to sell the investment at a specified price (the strike price) (p. 477), while the call option allows the holder the right to buy an investment at a specified price (the strike price) (p. 70).

(in cases when the shareholding interests are achieved by way of merger²⁵¹ or acquisition), or in separate shareholders' agreements.

In the context of private equity and corporate transactions²⁵², the put option refers to a clause allowing one of the shareholders to sell its shares, at a pre-determined price, to one of the other shareholders (usually the controlling shareholder²⁵³) or to the rest of shareholders, who would be, correlatively, under the obligation to purchase such shares at the pre-established price.

On the basis of the price to be paid to the shareholder exercising a put option right, the value of the shares subject to transfer pursuant to the put option can be established. Starting from the value of such shares, a valuation expert can establish the value of the entire investment vehicle whose shares are being transferred. However, the respective investment value, if established solely on the basis of the put option price, will not automatically correspond to the market value of the company. This is mainly because the investment value assessed on the basis of the put option value of the shares (i) is not established between independent entities, but between shareholders of the same company; (ii) is not negotiated on the open market, but is pre-established under the put option documents; and (iii) the acquirer of shares is contractually compelled to buy the shares subject to put option. Therefore, the use of the put option value could involve the disregard of particular market based valuation principles (*i.e.*, independent seller and buyer, acting without compulsion), and thus may not be an appropriate indicator of the market value of a company's shares. Nonetheless, when the put option value

²⁵¹ Justin L. Browder, *The 2007 Private Equity Bust: Re-Contextualizing Material Adverse Change Clauses in a Credit-Stricken Market* (University of Miami Law Review, July, 2009, 63 U. Miami L. Rev. 1151).

²⁵² For a brief presentation of how a put option functions in the real estate field, please refer to Jose Gabilondo, *Leveraged Liquidity: Bear Raids and Junk Loans in the New Credit Market* (University of Iowa, Journal of Corporation Law, Winter, 2009, 34 Iowa J. Corp. L. 447).

²⁵³ Blake J. Brockway, *Symposium: Into the Sunset: Bankruptcy as Scriptwriter of the Denouement of Financial Distress: Comment: Applying Federal Securities Law to chapter 11 Claim Conversions* (DePaul Business & Commercial Law Journal, 2009, 7 DePaul Bus. & Comm. L.J. 655).

can also be confirmed against the market values of shares in companies similar to the one subject to valuation, the put option share price would enable the assessment of the investment's overall value under the market based approach to valuation.

3.3.2 Comparable Sales Method

The comparable sales method within the market based approach assesses the value of investments by taking into account the information offered by transactions involving investments similar to the one subject to valuation, also known as 'comparable sales'. The 'comparable sales method' has also been referred to as the 'similar transactions method',²⁵⁴ the 'sales comparison method', the 'comparable company method',²⁵⁵ or, in very few instances, even as identifying the market based approach to valuation.²⁵⁶ While in investment arbitration it seems acceptable that the expression of 'comparable sales' may be substituted by 'sales comparison', there is no reason for using interchangeably the terms 'comparable sales method' and 'market based approach' to valuation, as the comparable sales method is one of the methods (along with stock price, partial sales and other methods) which may be used to establish the value of an investment under the market based approach to valuation.²⁵⁷ Consequently, for the purposes of this research, the concept of 'comparable sales' is employed in its primary sense – *i.e.*, to designate the method used in investment disputes for establishing the value of an investment under the market based approach to valuation, and not to indicate the market based approach itself.

The use of comparable sales method for the purposes of determining the value of an investment is based on two guiding ideas. Firstly, the use of comparable sales is grounded by the theory that a knowledgeable purchaser will pay for a property not more

²⁵⁴ Please see for instance *Robert Azinian, Kenneth Davitian, Ellen Baca v. The United Mexican States*, ICSID CASE No. ARB(AF)/97/2, 1 November 1999, para. 75.

²⁵⁵ *In re Radiology Associates, Inc.*, Delaware Court of Chancery, 611 A.2d 485, 490, 1991, p. 10.

²⁵⁶ By way of example, please see George Gaines, David Coleman, Linda Crawford, *Florida R.E. Principles, Practices, & Law* (27th Edition, Dearborn Real Estate Education, 2003), p. 322.

²⁵⁷ Sally Fairfax, Carolyn Yale, *Federal lands: a guide to planning, management, and state revenues* (Island Press, 1987), p. 23.

than the cost of acquiring an equally acceptable substitute property.²⁵⁸ Secondly, the use of comparable sales is based on the principle of analogy. When using comparable sales, arbitral tribunals analyse the terms and subject matter of particular transactions which have been already concluded before the valuation date. If the enterprises involved in past transactions show sufficient elements of similarity with the investment subject to valuation, tribunals may transfer the information acquired from such analysis as regards the price and terms of the transaction, and apply it for the assessment of the investment at the centre of the dispute. By using analogy, and starting from the existing data provided by previous comparable sales, the value of the investment subject to valuation can be assessed even though such investment was not actually involved in a sale.

3.3.2.1 Application Requirements

The comparable sales method is implemented in investment arbitration when transactions or sales involving businesses comparable to the investments subject to valuation can be identified, and when the prices involved in such transactions can be obtainable. Such transactions involving comparable companies are essential for the application of the method, and have been used in investment arbitration proceedings, either as the primary source of information²⁵⁹, or as a subsidiary indicator of investment value.²⁶⁰ In order to allow the application of the comparable sales method, and to be used as relevant and pertinent evidence before arbitral tribunals, the sales of businesses comparable to the ones subject to assessment (or ‘comparables’²⁶¹) used for valuation purposes must fulfil certain criteria, as detailed below.

²⁵⁸ George Gaines, David S. Coleman, Linda L. Crawford, *supra* note 257, at 322.

²⁵⁹ For instance, in *Glamis Gold, Ltd. v. United States of America*, Award of 8 June 2009 rendered by the ICSID Arbitral Tribunal in accordance with the United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules, under chapter 11 of the North American Free Trade Agreement, para. 450.

²⁶⁰ For instance, in *Robert Azinian, Kenneth Davitian, Ellen Baca v. The United Mexican States*, ICSID Case No. ARB(AF)/97/2, 1 November 1999, para.75, where the similar transaction method was used.

²⁶¹ Please refer to John W. Reilly, *The language of real estate* (5th Edition, Dearborn Real Estate Education, 2000), p. 79.

(i) Similarity between the Investment at the Centre of the Dispute and the Comparables

As indicated by the investment arbitration jurisprudence, the applicability of the comparable sales method depends on the similarity between the investment subject to assessment by the arbitral tribunal and the companies used for comparison.²⁶² Consequently, when the investment subject to valuation and the available comparables prove dissimilar, ‘the use of the comparable company method becomes meaningless for valuation purposes’.²⁶³

When establishing the similarity between the investment at the centre of arbitration and the comparable(s) used for valuation purposes, the criteria usually considered refer to capital, size, market share and competitors, revenue, regulatory environment, management.²⁶⁴ A judgment issued by an US court with regard to the value of a home inspection business (U.S. Inspect Inc., hereinafter ‘USI’) detailed the criteria relevant for a tribunal for the purposes of establishing similarity. Starting from the criticism brought by one expert (Richman) to another expert’s (Estabrook) valuation analysis, the court scrutinized the similarity between USI and the proposed comparables²⁶⁵ in terms of (i) type of company (listed or not on the stock exchange); (ii) size – with reference to revenue and number of employees; and (iii) services provided and relevant market for such services. The court decided as follows:

Notwithstanding Estabrook’s attempts to link USI to his chosen comparables, the court finds that these companies have almost no similarities to USI for a number of reasons. First, each of the six companies has its stock traded on a public exchange. To the contrary, USI is a closely held corporation whose outstanding shares are owned by less than fifteen people. As of December 31, 1998, USI employed

²⁶² In re Radiology Associates, Inc., Delaware Court of Chancery, 611 A.2d 485, 490, 1991, p. 10.

²⁶³ Ibid.

²⁶⁴ Kantor, *supra* note 11, at 124.

²⁶⁵ Ibid.

approximately 300 individuals. On the same date, Service master employed 45,000 people, Ecolab employed 10,000, and Rollins employed 8,934. Moreover, in 1998 Radonic's [the relevant USI business unit's²⁶⁶] net sales totalled approximately 25 million dollars. The same year, ADM Industries' net sales were 1.5 billion, Building One's totalled in excess of 809 million, Ecolab's approximated 1.9 billion, Maintenance America's exceeded 760 million, Rollins' fell just short of 550 million and ServiceMaster's exceeded 4.7 billion. Nor was there true comparability in the types of services provided by USI and Estabrook's chosen comparables. None of ADM industries, building One Services or Group Maintenance America provide home inspection services, which constitute the vast majority of USI's business. Ecolab provides various services to its customers, none of which are supplied by USI. Rollins primarily provides pest control services to its customers while USI provides no such services.²⁶⁷

Although the above analysis regarding the standards of similarity to be met by comparables is issued by a national court and not by an investment tribunal, it is nonetheless a pertinent indication that the investment subject to valuation and the comparables selected for valuation purposes should have similar shareholding structures, workforce, business scope and revenues.

The criteria mentioned in the above judgment are complementary to the ones set forth in the IVS 2013 with respect to comparables (which are referred to as 'similar businesses' in the IVS). Pursuant to the IVS, in order to be useful for valuation purposes under the sales comparison method, the comparables must meet a series of conditions, such as:

[...] similar businesses should be in the same industry as the subject business or in an industry that responds to the same economic variables.
[...]

- similarity to the subject business in terms of qualitative and quantitative business characteristics;
- amount and verifiability of data on the similar business;

²⁶⁶ Ibid.

²⁶⁷ *U.S Inspect Inc. v. McGreevy*, 57 Va. Cir. 511, 525-528, 2000 Va. Cir, LEXIS 524 (27 November 2000).

- whether the price of the similar business represents an arm's length transaction.²⁶⁸

The IVS therefore indicate, as criteria for the selection of comparables, matters related to both the similar businesses used as benchmarks for valuation purposes (such as the type of activity carried out), as well as aspects related to the transactions from which the information regarding the comparables is derived (*i.e.*, arm's length transactions).

(ii) Temporal Proximity between the Valuation Date and the Transactions involving the Comparables

Another requirement for the application of the comparable sales method relates to the transaction involving the comparable companies having occurred close to the valuation date. As expressed by the valuation doctrine, the closer the transaction involving the transaction and the valuation date, and the fewer the dissimilarities, the better the comparable.²⁶⁹

The practice of arbitral tribunals confirms that, when assessing the value of an investment at a certain date, the transactions with comparables chosen for the valuation exercise should be as close as possible to the valuation date. This was the case in *BG Group Plc. v. Argentina*, where the claimant, a British corporation, had a large direct and an indirect ownership interest in MetroGAS S.A. ('MetroGAS'), a natural gas distribution company incorporated in Argentina.²⁷⁰ Following a decree issued by the Argentinean President in 1992, MetroGAS (at that time known under its former name, Distribuidora de Gas Metropolitana S.A.) was awarded an exclusive license to distribute natural gas for the subsequent 35 years in an area comprising the

²⁶⁸ IVS 2013, IVS 200 Businesses and Business Interests, para. C17, at <http://standards.ivsonline.org/mod/page/view.php?id=112> (accessed on 10 January 2015).

²⁶⁹ John W. Reilly, *The language of real estate* (5th Edition, Dearborn Real Estate Education, 2000), p. 79.

²⁷⁰ *BG Group Plc. v. The Republic of Argentina*, arbitration under the Arbitration Rules of the United Nations Commission on International Trade Law (the UNCITRAL Rules), Final Award, 24 December 2007, para. 2.

City of Buenos Aires and the southern and eastern greater metropolitan Buenos Aires regions.²⁷¹ During the economic and social crisis which affected Argentina starting with 1998, the Argentinean government adopted a series of legislative enactments, including an Emergency Law, which negatively affected BG Group's investment in MetroGas, especially through the conversion of dollar denominated tariffs into pesos, at the rate of one peso to one US dollar.²⁷² The claimant alleged that, following the Emergency Law, its investment had been expropriated, and sought compensation for expropriation based on the value of its investment. When deciding the value of the investment prior to the Emergency Law, the tribunal rejected the DCF valuation proposed by BG Group's valuation expert, Mr. Wood-Collins. Instead, the tribunal relied on the information provided by a previous transaction which implied the transfer of shares in GASA, a company which was also a shareholder of MetroGas. The tribunal's reasoning was the following:

441. The record also includes evidence of a transaction involving an interest in MetroGAS before the enactment of the Emergency Law. Mr. Wood-Collins considered this transaction:

4.22 On 12 July 1998, Perez Companc sold 25% of GASA for US\$75 million. This implies that 100% of GASA was worth US\$ 300 million. At that time GASA had debts of US\$ 130 million and its sole asset was 70% of the shares of MetroGAS. As such, those shares in MetroGAS must have been valued at US\$ 430 million.

4.23 Consequently, 100% of the MetroGAS shares must have been valued at US\$ 614.3 million and therefore BG's 45.1% share of MetroGAS had an implied value of US\$ 277.0 million.

442. Considering that BG's exact total (direct and indirect) ownership interest in MetroGAS is 45.11%, the implied value of such interest is actually US\$ 277,110,730. It is the Tribunal's view that this is also a better proxy of the value of BG's investment before promulgation of the Emergency Law.²⁷³

²⁷¹ Ibid, paras. 18 and 23.

²⁷² Ibid, paras. 18 and 74.

²⁷³ Ibid, paras. 441-442.

The tribunal decided that the transaction selected for valuation purposes provided relevant evidence with respect to the value of MetroGas before the enactment of the Emergency Law, especially because the sale of GASA shares was executed in 1998, shortly before the legislative enactment. As the tribunal aimed to assess the value of MetroGas (the investment at the centre of the dispute) before the negative legislative interference caused by the enactment of the Emergency Law, the use of the GASA transaction for the valuation of the pre-expropriation value of MetroGas was justified especially by the temporal proximity between the valuation date and the date when the benchmark transaction was implemented.

(iii) Geographic Proximity between the Investment at the Centre of the Dispute and the Comparables

The practice of arbitral tribunals indicates that, in order to establish comparability between the investment at the centre of the dispute and the comparables used for the purposes of valuation, the investment under valuation and the comparables must be in the same geographic area.

This idea was applied by the ICSID tribunal in *Waguih v. Egypt*. In this case, the claimants were the main investors in Touristic Investments and Hotels Management Company and SiagTaba Company (together, ‘Siag’), two companies incorporated in Egypt. These companies acquired from the Government of Egypt a large parcel of oceanfront land on the Gulf of Aqaba on the Red Sea, for the purpose of developing a tourist resort. The claimants alleged that, through a series of acts and omissions starting in 1995, Egypt expropriated their investment, consisting of the property owned by the Claimants and the project, and thus destroyed the Claimants’ investments.²⁷⁴ When deciding upon the dispute, the tribunal relied on the use of comparables from the same geographic area in order to determine the value

²⁷⁴

Waguih Elie George Siag and Clorinda Vecchi v. The Arab Republic of Egypt, ICSID Case No. ARB/05/15, 1 June 2009, para.2, quoting the CBRE Report of 27 July 2007, p. 34.

of the investment in the case. Firstly, the tribunal noted that Egypt itself had recently commenced construction of a substantial resort in nearly the same location with the investment in the case at hand, known as ‘the Riviera Centre’. Secondly, the tribunal noted that, pursuant to the report issued by the valuation expert in the case,

The quality of the [Claimants’] Property compares with the best resort sites in Sharm El Sheik, Hurghada and elsewhere in the Sinai and Red Sea areas and this, coupled with the unique character of the Property close to Eilat in Israel and Aqaba in Jordan would have ensured that had resort development been permitted, the Property would have become a central feature of a major coastal resort.²⁷⁵

The tribunal concluded that the desirability of the claimants’ property was confirmed by the development by Egypt of a comparable resort in the vicinity of the site where the investment was located.²⁷⁶ Also, the fact that the investment, had it been developed to its full potential, would have been similar to the best resorts in the area, led the tribunal to the conclusion that comparable resorts within the same geographic area (*i.e.*, Sinai and Red Sea areas) were appropriate indicators of the value of the claimants’ investment. Consequently, when rendering its award, the tribunal relied on the comparable sales valuation method based on comparable resorts which demonstrated geographical proximity to the investment at the centre of the dispute, and established an overall investment value of US\$ 181,350,000.²⁷⁷

3.3.2.2 Number of Comparables

Another material issue in the context of the comparable sales method regards the number of comparables used for valuation purposes. In certain areas of valuation such as real

²⁷⁵ Ibid, para. 574.

²⁷⁶ Ibid, para. 574. Pursuant to the arbitral tribunal, such desirability of the property also substantiated the significant valuation results reached by the valuation expert.

²⁷⁷ Ibid, para. 572. In this case, the result obtained pursuant to the Comparable Sales Valuation was very similar to the results obtained by the valuation expert after using other two valuation methods, namely the Residual Land Valuation and the Lost Business Opportunity (Discontinued Cash Flow) valuation. For details, please also refer to para. 519 of the aforementioned arbitral award.

estate valuation, the use of three to six comparable sales is considered to offer sufficient evidence for establishing the probable value of a property.²⁷⁸ The data regarding such comparable sales used for valuation purposes may be obtained directly from buyers or sellers involved in the comparable transaction, or from public information registered with the land books, tax authorities etc.²⁷⁹

The situation is however different in the field of investment valuation within the framework of arbitral disputes. In this context, the investments are usually highly complex enterprises with a great magnitude, which also have specific economic, geographic, physical or legal characteristics.²⁸⁰ Consequently, due to their specific nature, and sometimes the uniqueness of investment projects, a number of three to six comparables to be used for investment valuation in arbitral disputes is in most cases impossible to identify. Therefore, in investment arbitration, a smaller number of comparables could prove acceptable for the purposes of establishing an investment's worth, although a minimum of three comparables would be nonetheless preferable.

The number of comparables used for valuation purposes has a direct impact on the accuracy of valuation results, and on the potential errors which may come into play in the valuation exercise. A large number of comparables (*e.g.*, 3 to 6) makes available more data for valuation purposes, and consequently the overall results of the comparable sales method are more precise (and includes less errors) when compared to the situation when only one or two comparables would be taken into account for the assessment of investment value.

The typical error margin encountered in investment valuation based on the comparable sales method usually ranges from 5-10% to 20%. This was noted, among others, in the ICSID case of *Waguih v. Egypt*. There, the tribunal questioned the valuation expert as regards the accuracy of the valuation using the comparable sales method (or sales

²⁷⁸ Charles F. Floyd, Marcus T. Allen, *Real Estate Principles* (7th Edition, Dearborn Real Estate Education, 2002), p. 234.

²⁷⁹ Ibid.

²⁸⁰ Marboe, *supra* note 9, at 177.

comparison) and the margin of error to be applicable in case of such valuation, and noted that:

575. At the end of his cross-examination Mr Fleetwood-Bird was asked by the Tribunal what margin of error he would apply to his Comparable Sales Valuation. His response was that ordinarily he would hope to be within 5% either side of an exact or precise figure. However, in view of the uniqueness of this Property and the difficulties which he acknowledged were attendant upon conducting this particular valuation, he stated that in the present case: “I believe that percentage should be wider, and it could be at least 10% on either side of my figure.”

576. In all the circumstances, the Tribunal increases that margin to 20% and will apply that discount to the value of the Property as assessed by Mr Fleetwood-Bird (USD 181,350,000). That produces a value of USD 145,080,000.²⁸¹

Thus, in case of investment valuations based on comparable sales, a discretionary margin of 5 up to 20 percent can be applied by the arbitral tribunal to the amount indicated by the valuation expert. However, as the above also demonstrates, arbitral tribunals almost never explain the legal and economic grounds for which a certain margin of error was preferred or applied instead of others.

3.3.3 Partial Sales Method

In some investment disputes, arbitral tribunals can establish the value of investments by applying the partial sales method. Such method assesses the value of investments on the basis of the price obtained by the investor in a past sale of one or more parts of its investment. Unlike prior transactions regarding the sale of shares in corporate vehicles used for the development of investments (which qualify as share deals), partial sales involving part(s) of the investments usually qualify as asset deals.

One of the instances when the partial sales method played a central role in investment valuation was *Starrett Housing v. Iran*.²⁸² The claimant (Starrett Housing Corporation) participated together with Bank Omran of Iran to the development of a residential

²⁸¹ *Waguih Elie George Siag and Clorinda Vecchi v. The Arab Republic of Egypt*, paras. 575-576.

²⁸² *Starrett Housing Corporation v. Iran*, 16 Iran-US Claims Tribunal (1987), 112.

community project on an area of unimproved land in the proximity of Tehran.²⁸³ As part of the project, Starrett Housing was responsible for the construction of a residential complex comprising approximately 6,000 apartments, on the land purchased from or through Bank Omran. In order to obtain permits and licences for the constructions and the construction works, Starrett Housing incorporated an Iranian project company (the Shah Goli Apartment Company), which was owned by Starrett Housing indirectly, through its subsidiaries. Starrett Housing also owned indirectly Starrett Construction Company, a subsidiary incorporated in Iran and which was entitled to a management fee of 11,75% from the profit resulted from the sale of the apartments within the project. Subsequently, following a series of acts adopted by the government of Iran, which culminated with the unlawful appointment by Iran of a temporary manager of the project, Starrett Housing was deprived of its control and use of its investment.²⁸⁴

When determining the value of the affected investment (for the purposes of establishing the compensation payable to the investor), the tribunal considered primarily the prices obtained for the previous sale of several apartments in the residential complex at the centre of the dispute.²⁸⁵ Such sales were not sales of shares in the project company, but sales of assets (*i.e.*, apartments) pertaining to the investment. On the basis of prices involved in previous partial sales of the project company's assets, the tribunal estimated the total value of the residential project. However, the final result of the valuation process in relation to the investment was reached through a DCF valuation of the investment.

In spite of the above example, the applicability of the partial sales method is limited in investment arbitration, mainly because of the rarity of relevant asset deals involving parts investments at the centre of disputes.

²⁸³ R. Doak Bishop, James Crawford, W. Michael Reisman, *Foreign investment disputes: cases, materials, and commentary* (Kluwer Law international, 2005), p. 864.

²⁸⁴ For a case summary of *Starrett Housing v. Iran*, please refer to http://www.biicl.org/files/3945_starrett_housing_synopsis.pdf (accessed on 26 September 2012).

²⁸⁵ *Starrett Housing Corporation v. Iran*, 16 Iran-US Claims Tribunal (1987), 112, para. 309.

3.3.4 Economic Multipliers Method: EBITDA and EBIT

The economic multipliers method is regarded by the investment arbitration doctrine and case law as a method pertaining to the market based approach to valuation.²⁸⁶ The main economic multipliers used in investment disputes are EBITDA and EBIT, as detailed below.

3.3.4.1 EBITDA

EBITDA refers to a company's Earnings Before Interest, Taxes, Depreciation and Amortization, and is one of the valuation tools commonly used for the calculation of an enterprise's value. EBITDA is at its turn employed for determining the Enterprise Multiple, which is calculated by dividing the Enterprise Value to EBITDA. The correlation between these economic concepts is expressed by the following formula:

$$\text{Enterprise Multiple} = \frac{\text{Enterprise Value}}{\text{EBITDA}} \quad 287$$

EBITDA, as well as the enterprise multiple, can be used by potential acquirers of businesses in order to assess the value of target companies that they envisage to take over. EBITDA may also be used in investment valuation, as explained below.

(i) Mechanism

The application of EBITDA in investment arbitration is explained by M. Kantor, who points out that EBITDA can be used in conjunction with the value of companies comparable to the one subject to the valuation, for the purposes of assessing the overall investment value. M. Kantor points out that:

To find the market value of the company at the centre of the dispute, the expert witness will seek to determine the transaction price of acquiring the

²⁸⁶ Please see Marboe, *supra* note 9, at 202; Kantor, *supra* note 11, at 123.

²⁸⁷ For details, please refer to <http://www.investopedia.com/terms/e/ev-ebitda.asp> (accessed on 9 July 2013).

comparable company as a multiple of the unit of comparison – if, say, the stock market capitalization of a company is USD 100 million and it has an EBITDA of USD 10 million, then the EBITDA “multiple” for a ratio of EBITDA-to-total capitalization is 10X. The expert would then determine the EBITDA of the disputed company at the heart of the arbitration, and apply the same 10X multiple to determine the market value to a third party of that company. Of course, like all financial considerations, the expert must have good numbers for the components of the EDITDA in order to offer a useful valuation.²⁸⁸

As noted above, EBITDA is used in conjunction with the enterprise multiple so as to assess the value of investments subject to valuation, on the basis of financial information offered by companies similar to the one subject to valuation. Thus, even though the legal doctrine refers to the EBITDA valuation, such valuation is actually carried out on the basis of both EBITDA and the enterprise value applicable to the company subject to valuation, as well as based on financial data regarding a pool of comparable companies.

(ii) Endorsement in Investment Arbitration

EBITDA based valuations are used in investment arbitration by both claimants and respondents. For example, in *Sempra v. The Argentine Republic*, the dispute concerned the investment made by the claimant (Sempra International – ‘Sempra’) in two companies, Sodigas Pampeana S.A. (‘Sodigas Pampeana’) and Sodigas Sur S.A. (‘Sodigas Sur’), which in turn were the owners of two gas distribution companies, Camuzzi Gas Pampeana (‘CGP’) and Camuzzi Gas del Sur (‘CGS’) in Argentina.²⁸⁹ CGS and CGP held licences for the distribution of gas in seven Argentine provinces for a term of 35 years (until 2027), with a possible 10-year extension.²⁹⁰ Sempra argued that several measures adopted by the Government of Argentina beginning with 2000-2002 resulted in the permanent abrogation of most of the rights it had under the existing regulatory framework and pursuant to the

²⁸⁸ Kantor, *supra* note 11, at 221.

²⁸⁹ *Sempra Energy International v. Argentine Republic*, ICSID Case No. ARB/02/16, Award of 28 September 2007, para. 83.

²⁹⁰ For a brief presentation of the award, please refer to www.biicl.org/files/3906_2007_sempra_energy_v_argentina.pdf (accessed on 16 July 2013).

distribution licenses²⁹¹ held by CGP and CGS. For the assessment of the value of the two companies negatively affected by Argentina's actions, Sempra relied, *inter alia*, on the value of EBITDA. The tribunal held that:

Under the Claimant's assumptions, the EBITDA in Argentine pesos increases, between 2001 and 2002, by 272% for CGP and 270% for CGS. This increase is even higher than the increase in the exchange rate during the same period.²⁹²

In spite of the fact that the EBTDA value was one of the main arguments put forward by the claimant, the arbitral tribunal relied mainly on the discounted cash flow method for the purposes of establishing the final value of the investment.

The EBITDA factor has been also invoked in *Rumeli Telekom v. Kazakhstan*, where the tribunal noted that:

According to Claimants, Respondent itself recognized and praised KaR-Tel's achievement [...]. Moreover, KaR-Tel was generating positive EBITDA margins – *i.e.*, generating a positive operating cash flow – in both 2001 and early 2002, when Claimants were suddenly evicted from KaR-Tel.²⁹³

In addition to the above, EBITDA was considered by arbitral tribunals for the purposes of establishing the investment value in *CME v. The Czech Republic*. In this case, the tribunal concluded that one of the main factors that led to the substantial difference between the valuation submitted by the claimant, and the valuation submitted by the respondent, was the application of different EBITDA multipliers:

598. The Tribunal scrutinized the Rothschild (USD 335 million) and the adjusted Monitor (USD 545 million) valuation under the aforementioned aspects. The Tribunal considered that the Monitor EBITDA margin assumptions [...] were more optimistic than the CME management June 1999 forecasts and that Monitor at the level of 60% and Rothschild at the level of 53.2% projected a stable ad market share as a basis for calculating

²⁹¹ *Sempra v. Argentina*, para. 93.

²⁹² *Ibid*, para. 440.

²⁹³ *Rumeli Telekom A.S. and Telsim Mobil Telekomikasyon Hizmetleri A.S. v. Republic of Kazakhstan*, ICSID Case No. ARB/05/16, 29 July 2008, para. 111.

for the terminal value (after 2008), whereas the 2001 KAGAN report projected a continuing decline until 2011.²⁹⁴

Although the final valuation was carried out using several valuation methods, the above award indicates both the tribunal's endorsement with respect to the EBITDA valuation, as well as the large discrepancies which may be incurred in case different EBITDA related assumptions are used.

3.3.4.2 EBIT

EBIT, the short form for earnings before interest and taxes, is an instrument for measuring an investment's profitability and overall value in a manner similar to EBITDA. The main difference between EBIT and EBITDA resides in fact that the former excludes interest and income tax expenses.²⁹⁵

While, similar to EBITDA, EBIT has been involved in investment arbitration cases, the practice of ICSID tribunals refers to EBIT less frequently than to EBITDA.²⁹⁶ One of the few cases where EBIT was used is *Enron v. Argentina*. In this case, within its claim, ENRON relied on EBIT for the calculation of the value of its investment in TGS, as noted by the tribunal in its award:

The Claimants have requested the award of damages relating to the Technical Assistance Agreement ("TAA") between TGS and EPCA, dated 28 December 1992/27. Under its terms, EPCA receives compensation for its role as "Technical Operator" of TGS' gas transportation system, and its annual compensation is the higher of: (1) US\$3 million, or 2) 7% of TGS' EBIT minus US\$3m. The Claimants' experts have calculated that the after-tax value of the TAA to Enron was US\$46.4 million as of December 2001.²⁹⁷

The investment arbitration cases involving EBITDA and EBIT based valuations indicate that arbitral tribunals accept the applicability of such valuation methods in investment disputes. However, the use of EBITDA and EBIT is still not as wide-spread in

²⁹⁴ *CME v. The Czech Republic*, para. 598.

²⁹⁵ Zvi Bodie, Alex Kane, Alan Marcus, *Essentials of Investments* (McGraw Hill Irwin, 2004), p. 452.

²⁹⁶ EBIT was also used in *CME v. The Czech Republic*. For details, please refer to *CME v. The Czech Republic*, para. 577.

²⁹⁷ *ENRON v. Argentina*, para. 440.

investment arbitration as it is in economic valuation of enterprises for transactional and business purposes, and, in most cases, economic multipliers are used in investment arbitration only to confirm or support the results obtained by using other valuation indicators.

3.3.5 Purchase Offers Method

Another valuation method used in the practice of arbitral tribunals for the assessment of the value of investments is grounded on the value of purchase offers made by third-party independent purchasers for the acquisition of certain investments (in whole or in part). The valuation method based on such values is known as the purchase offers method.

A purchase offer is usually grounded on the financial analysis of the targeted investment, as well as on the results offered by a technical and legal due diligence exercise. For this reason, purchase offers are generally made by knowledgeable potential buyers. Apart from being a starting point in a future negotiation, purchase offers may be, in some jurisdictions, binding for a certain period of time for the person(s) making them.

For these reasons, arbitral tribunals consider the value of purchase offers within the process of assessing the worth of investments at the centre of arbitral disputes.

Offers for the purchase of shares in the corporate vehicles used for the development of investments proved relevant in *James A. Saghi v. Iran*. In this case, the tribunal held that:

KCC's offer in 1975 to purchase a 45% equity stake in N.P.I. [...] is potentially important evidence despite the fact that it was made 5 years before the date of the taking. As stated above, the fair market value of a company can be best defined as 'the amount which a willing buyer would have paid a willing seller...' KCC clearly was such a willing buyer and must have been reasonably well informed about N.P.I. as a result of the relationship between the companies extending over many years.²⁹⁸

²⁹⁸

James A. Saghi v. Iran, 14 Iran – US CTR (1987) 223, para. 91.

Similarly, **offers for the purchase of parts of the investment (by way of asset deals)** have been used by the parties in investment arbitration cases. For example, in *ME Cement v. Egypt*, the tribunal noted the following:

Claimant also has submitted evidence showing negotiations, correspondence and draft contracts with both Mubarak Shipping Co. and Transbulk Shipping S.A. (C49 to C58) though a sale of the Poseidon was not finalized because, as Claimant alleges, GAFI blocked the sale (CII 21 et seq. and C56). The Memorandum of Agreement of June 26, 1990 (C54) shows that Transbulk had agreed to pay a price of US\$ 1,324,000.00 for the ship (as a net price after deduction of anticipated costs for the repair of one of the two cranes on board), and respective payments were actually made to the Claimant (C55), though they were later returned. On that basis, Claimant seeks in this arbitration (CII 23) US\$ 1,324,000.00 plus US\$ 27,000.00 which Transbulk had been ready to pay for additional expenses [...]²⁹⁹

However, the fact that the use of purchase offers method as a basis for the calculation of the value of investments is not frequent in investment arbitration points out that tribunals are reluctant to use purchase offers as the basis for the calculation of the value of investments. This may be explained by the fact that, while the market based approach calculates investment value based on the probable price which would be exchanged between a buyer and a seller in a transaction on arm's length basis, information made available by purchase offers relates to transactions which have not been completed and which do not indicate the actual value for which a business was actually transacted, and thus such figures may be regarded as insufficient value indicators.

3.4 Elements Operationalizing the Market Based Approach to Valuation

When implementing the market based approach in investment arbitration cases, arbitral tribunals take into account several elements which operationalize³⁰⁰ (or ensure the actual application) of the market based methods analysed above. These elements are specific guiding ideas for the market based approach, and are derived from the fact that the results of valuations carried out under the market based approach must reflect, regardless of the valuation method used, (i) the

²⁹⁹ *ME Cement v. Egypt*, para. 148.

³⁰⁰ Pursuant to the Concise Oxford English Dictionary (11th Edition, Oxford University Press, 2006), 'to operationalize' (or 'operationalise') means to 'put into operation or use'.

estimated amount for which an investment should exchange (ii) at a certain date (iii) between a willing buyer and a willing seller, (iv) in an arm's length transaction (v) in which the parties act knowledgeable and without compulsion.³⁰¹

These elements differentiate the market based approach to valuation from the income based approach (in which case there is no arm's length sale-purchase requirement, and where investment value is established based on the estimated future revenues to be generated by the investment) and the asset based approach (where no willing buyer and willing seller requirements are needed for valuation purposes).

The following section analyses these main elements which are considered by arbitral tribunals and valuation experts in the actual application of the market based approach to investment valuation.

3.4.1 Estimated Amount for which the Investment should Exchange

Under the market based approach to valuation, the value on an investment is equal to the price payable for the respective investment in an arm's length transaction. Pursuant to IVS, market value reflects the 'best price reasonably obtainable by the seller and the most advantageous price reasonable obtainable by the buyer', considering a number of special terms and circumstances such as financing arrangements, sale and lease-back arrangements, concessions granted by anyone associated with the property etc.³⁰²

The market based value of the investment at the centre of a dispute therefore represents not the price which has been actually paid or predetermined for the investment, but an estimate of the most probable price which may be obtainable for the sale, and respectively purchase, of such investment on the free market as of the valuation date, as established by the arbitral tribunal.

³⁰¹ IVS 2013, IVS Framework, para. 30, at <http://standards.ivsonline.org/mod/page/view.php?id=108> (accessed on 11 January 2015).

³⁰² IVS, Eighth Edition, 2007, p. 77.

3.4.1.1 The Relationship between the Type of Investment and the Estimated Amount

The estimated amount under the market based approach may be influenced by the type of investment for which compensation is sought. In practice, investments have taken a large variety of forms, and have been used in various areas of the economy. Multilateral treaties for the protection of investments offer eloquent examples of how wide the concept of ‘investment’ is. For instance, under the Energy Charter Treaty, ‘Investment’ means every kind of asset, owned or controlled directly or indirectly by an Investor and includes:

- a) Tangible and intangible, and movable and immovable property and any property rights such as leases, mortgages, liens, and pledges;
- b) a company or business enterprise, or shares, stock, or other forms of equity participation in a company or business enterprise, and bonds and other debt of a company or business enterprise;
- c) claims to money and claims to performance pursuant to contract having an economic value and associated with an Investment;
- d) Intellectual Property;
- e) Returns;
- f) any right conferred by law or contract or by virtue of any licences and permits granted pursuant to law to undertake any Economic Activity in the Energy Sector.³⁰³

Considering the extensive range of assets, rights and activities that may qualify as investments, arbitral tribunals sometimes encounter difficulties in establishing the value of particular types of investments using the market based approach to valuation. By way of example, it may be construed that the market value of an investment taking the form of a pledge would be the secured amount as provided in the pledge documents. However, due to certain circumstances related to the pledge (such as the pledger’s insolvency or bankruptcy), the pledge could prove of no interest for potential buyers and therefore its market value may be significantly lower than the secured amount.

Similarly, in the circumstance when a ‘claim’ may be construed as an ‘investment’, one may argue that the value of the claim is the actual value indicated by the claimant.

³⁰³ The Energy Charter Treaty, Article 1.(6).

However, the value that may be reached by a tribunal when deciding upon such claim may greatly differ from the amount indicated by the claimant, as such tribunal may award a smaller sum as damage or compensation. Under such circumstances, the market value of the claim (*i.e.*, the rights arising in relation thereto, if such rights are transferable, and presuming that a market for such rights exists) would reflect the risk associated with the claim being unsuccessful, and therefore could be significantly lower than the amount of the claim.

3.4.1.2 The Impact of ‘Equitable Considerations’ and Tribunals’ Discretion when Assessing the Estimated Amount

When establishing the value of investments under the market based approach, arbitral tribunals assess the probable sum of money for which the investment at the centre of the dispute would be sold, and respectively bought, on the market. For this purpose, tribunals usually rely on the reports issued by valuation experts appointed by the parties or by the arbitral tribunal. Nevertheless, because on the valuation date no real transaction is actually implemented with respect to the investment subject to valuation, but instead the valuation expert only makes a simulation of such transaction (and thus estimates its terms), arbitral tribunals can be in the position to make approximations regarding the probable value of the investment subject to valuation, by taking into account, in addition to valuation reports (which can present different results), other relevant factors, such as the general circumstances of each case and equitable considerations.

This conclusion has arisen in the decision issued by the Iran-U.S. Claims Tribunal in the *AIG v. Iran* case. Pursuant to such decision, from the facts presented by the disputing parties:

It might be possible to draw some conclusions regarding the higher and the lower limits of the range within which the value of the company could reasonably be assumed to lie. But the limits are widely apart. In order to determine the value within those limits, to which value the compensation should

be related, the Tribunal will therefore have to make an approximation of that value, taking into account all relevant circumstances in the case.³⁰⁴

Apart from taking into account the relevant circumstances of each case (which have not been detailed upon or exemplified by the arbitral tribunal in the abovementioned award), other matters may be also considered for the purposes of reaching a decision on the value of the investment subject to dispute, and consequently, the amount of damages. Among such matters, in a number of cases tribunals made reference to equitable considerations and to equity. For instance, the arbitral tribunal in *LIAMCO v. Libya* expressed that it will rely, among others, on equity as a source of law when deciding upon the facts of the case,³⁰⁵ including with regard to the valuation-related aspects.³⁰⁶

Similarly, a number of decisions of international courts and tribunals made reference to ‘equitable considerations’ as the basis for arbitral tribunals’ discretion³⁰⁷ in assessing the market value of an investment, and, consequently, the amount of compensation for expropriation. The idea of ‘equitable considerations’ may be seen in connection with the guiding principle of international law³⁰⁸ regarding the standard of compensation for expropriation formulated by the Permanent Court of International Justice (PCIJ) in the *Factory at Chorzow* case (*Germany v. Poland*), pursuant to which ‘reparation must, as far as possible, wipe out all the consequences of the illegal act and re-establish the situation which would, in all probability, have existed if that act had not been committed’.³⁰⁹ In conjunction with such principle, equitable considerations are the ones

³⁰⁴ *American International Group, Inc. and American Life Insurance Company v. The Islamic Republic of Iran and Central Insurance of Iran* (Bimeh Markazi Iran), Award No. 93-2-3, 4 Iran-U.S. C.T.R. 96 (Dec. 19, 1983), para. 109.

³⁰⁵ *LIAMCO v. Libya*, Award of 12 April 1977, (1982), 62 ILR, par. 141, 200 *et seq.*

³⁰⁶ Please refer to Marboe, *supra* note 9, at 145.

³⁰⁷ The arbitral tribunals’ discretion does not come into play only in relation to the assessment of the value of investments at the centre of disputes, but with various other aspects from investment arbitration proceedings, such as admissibility of evidence, assessment of the fact of the case etc. Such discretionary matters can be encountered not only in the activity of arbitral tribunals, but also at the level of ICSID as an institution (in this respect, see for instance, David Collins, *ICSID Annulment Committee Appointments: Too Much Discretion to the Chairman?*, *Journal of International Arbitration*, 30(4), 2013, pp. 333-344.

³⁰⁸ Boleslaw Adam Boczek, *International law: a dictionary* (Scarecrow Press Inc., 2005), p.110.

³⁰⁹ *Case concerning the Factory at Chorzów, Germany v. Poland*, (Claim for Indemnity) (Jurisdiction), Publications of the Permanent Court of Justice, Series A. – No. 9, July 26th, 1927, Collection of Judgments, available online at <http://www.icj->

which, in certain circumstances, offer the basis for arbitral tribunals to establish the value of investments (and compensation payable to the foreign investors) by departing from the strict economic figures included in valuation reports, for the purposes of putting investors in the situations they would have enjoyed if the interferences with investments had not been produced.

The investment dispute practice indicates that the tribunal has either the obligation, or the possibility to take equitable considerations into account when determining the fair market value of an investment.

The older case law appears to indicate that the tribunal is *under the obligation* to take equitable considerations into account when establishing the value of an investment. The decision in *Aminoil v. Kuwait* is eloquent in this respect, as it states that:

It is well known that any estimate in money terms of amounts intended to express the value of an asset, of an undertaking, of a contract, or of services rendered, must take equitable considerations into account.³¹⁰

Such practice of arbitral tribunals as regards the role of equitable considerations in establishing the investments' market value of an investment and the due compensation has evolved. More recent cases share the perspective that arbitral tribunals have the possibility (and not the obligation) to take equitable considerations into account when determining the market value of the investment and compensation owed to affected investors. For instance, the award issued in the ICSID case of *Technicas Medioambientales Tecmed v. Mexico* underlined that the tribunal 'may consider equitable principles when setting the compensation owed to the claimant, without thereby assuming the role of an arbitrator *ex aequo et bono*'.³¹¹

This idea was reinforced in *Phillips Petroleum v. Iran*. In this case, the tribunal was in the position to decide which would be the amount that a willing buyer would pay to a

cij.org/pcij/serie_A/A_09/28_Usine_de_Chorzow_Competence_Arret.pdf (accessed on 23 January 2014).

³¹⁰ *Aminoil v. Kuwait*, Award, 24 March 1982, 21 ILM 976, para. 78.

³¹¹ *Technicas Medioambientales Tecmed SA v. Mexico*, Award of 29 May 2003, 19 ICSID Review – Foreign Investment Law Journal 157, n. 229, with reference to para. 190.

willing seller for the investment at the centre of the dispute – namely, the claimant’s rights deriving from a joint-venture agreement for the exploration and exploitation of petroleum resources in the Persian Gulf.³¹² The tribunal preferred to make its own assessment of the market value of the investment at hand, grounding its decision on equitable considerations and certain other factors independent from the report issued by the valuation expert involved in the case. The tribunal pointed out that:

The Tribunal recognizes that the determination of the fair market value of any assets inevitably requires the consideration of all relevant factors and the exercise of judgment.³¹³ [...] In “*Starrett*”³¹⁴, [...] the Tribunal made various adjustments to the conclusions [of the expert appointed by the tribunal] and the resulting amounts. The need for such adjustments is understandable, as the determination of value by a tribunal must take into account all relevant circumstances, including equitable considerations.³¹⁵

In view of the above, apart from the economic matters on which arbitral tribunals rely when establishing investment value under the market based approach, general circumstances of each case and equitable considerations can be additionally taken into account. Consequently, in cases when arbitral tribunals assess investments’ market value based on such aspects, the market value established by the arbitral tribunals may not necessarily reflect the market value from a strict economic standpoint, but would instead reflect the result of economic valuations, diminished or increased by tribunals with a margin derived from the specific facts of each case and applied in view of equitable considerations.

³¹² David P. Stewart, *Philips Petroleum Co. Iran. v. Islamic Republic of Iran*, The American Journal of International Law, Vol. 85, No. 1 (Jan. 1991), p. 184.

³¹³ *Phillips Petroleum Company Iran v. The Islamic Republic of Iran*, The National Iranian Oil Company, Award No. 425-39-2, 21 Iran-U.S. C.T.R. 79 (29 June 1989), para. 122.

³¹⁴ Reference is made to the decision rendered in *Starrett Housing Corporation, Starrett Systems, Inc., Starrett Housing International, Inc. v. The Government of the Islamic Republic of Iran, Bank Omran, Bank Mellat, Bank Markazi*, Award No. ITL 32-24-1, 4 Iran-U.S. C.T.R. 122, 157 (19 December 1983).

³¹⁵ *Phillips Petroleum Company Iran v. The Islamic Republic of Iran*, The National Iranian Oil Company, para. 123.

3.4.2 Certain Date

Under the market based approach to investment valuation, the estimated market value of the investment subject to assessment must be established by reference to a particular date.³¹⁶ The date as of which the value of the investment is assessed is referred to as the ‘valuation date’, and is usually different from the date(s) when the actual process of valuation (*i.e.*, the valuation exercise) is carried out.

The amount corresponding to the market value of an investment therefore must reflect the market state and the circumstances from the valuation date, and not a past or a future date. As markets and market conditions may change rapidly, the estimated value of an investment may be incorrectly or improperly established³¹⁷ if the valuation date and the market conditions applicable at such date are not accurately correlated.

In international investment disputes, the valuation date used in the quantum phase of arbitrations is of particular importance in expropriation cases, where such date is interrelated with the date of expropriations. Most BITs and international legal documents for the protection of foreign investments contain provisions prohibiting the taking of foreign investors' assets by public authorities of the host state,³¹⁸ except if such taking is carried out for a public purpose, on a non-discriminatory basis, against payment of compensation, and in accordance with due process of law.³¹⁹ A taking of property made with the observance of these conditions meets the criteria of a lawful expropriation; otherwise, the taking qualifies as an unlawful expropriation. Also, the state interference with the investors' property may take the form of either a direct expropriation, or of an indirect expropriation (*i.e.*, a taking consisting of certain measures equivalent to expropriation).

³¹⁶ IVS, Eighth Edition, 2007, p. 77.

³¹⁷ Ibid.

³¹⁸ Todd Weiler, *International investment law and arbitration: leading cases from the ICSID, NAFTA, bilateral treaties and customary international law* (Cameron May, 2005), p. 600.

³¹⁹ United Nations Conference on Trade and Development, *Key terms and concepts in IIAs: a glossary* (UNCTAD Series on Issues in International Investment Agreements, United Nations, New York and Geneva, 2004), p. 87.

Arbitral tribunals dealing with expropriation cases scrutinise the essential relationship between the expropriation date, on one side, and the valuation date and the value of the investment at the centre of the dispute, on the other. The importance of such correlation was underlined in *Compania del Desarrollo de Santa Elena ('Santa Elena Company') v. Costa Rica*. In this case, the arbitral tribunal was called to decide on the value of an investment comprising a large surface of land (the 'Santa Elena Property') which was expropriated by Costa Rica from an US investor. The Santa Elena Company acquired the Santa Elena Property for the purpose of developing a tourist resort and a residential community. However, following an expropriation decree issued by Costa Rica in 1978, the Santa Elena Property was expropriated for alleged environmental purposes. While the expropriation occurred in 1978, the arbitral tribunal issued its award in 2000. Because a long period of time passed between the date of expropriation and the valuation date, the accurate determination of the valuation date appeared of critical importance for establishing the market value of the expropriated investment. The ICSID tribunal pointed out that:

The significance of identifying the date of taking lies in its bearing on the factors that may properly be taken into account in assessing the "fair market value" of the Property – a value which, as noted, both sides are agreed must be the basis of the present Award. If the relevant date were the date of this Award [*i.e.*, year 2000³²⁰], then the Tribunal would have to pay regard to the factors that would today be present to the mind of a potential purchaser. Of these, the most important would no doubt be the knowledge that the Government has adopted an environmental policy which would very likely exclude the kind of tourist, hotel and commercial development that the Claimant contemplated when it first acquired the Property. If, on the other hand, the relevant date is 5 May 1978, factors that arose thereafter – though not necessarily subsequent statements regarding facts that existed as of that date – must be disregarded.³²¹

As can be derived from the above, the correlation between the date of expropriation and the valuation date is a factor which impacts the value of investments assessed under the market based approach to valuation, and must be therefore considered by arbitral tribunals in the context specific to each investment dispute.

³²⁰ Note added.

³²¹ *Compania del Desarrollo de Santa Elena v. Costa Rica*, ICSID Case No. ARB/96/1, 17 February 2000, para. 84.

3.4.3 Willing Buyer and Willing Seller

Under the market based approach, valuation experts and arbitral tribunals must assess the amount that would be paid by a willing buyer to a willing seller for the respective investment.

Both old and recent practice of investment arbitration tribunals is clear that an appropriate valuation under the market based approach must take into account the particularities of a ‘willing buyer’³²² and a ‘willing seller’. For instance, the arbitral tribunal in *INA v. Iran* set forth that ‘fair market value may be stated as the amount which a *willing buyer would have paid to a willing seller*³²³ for the shares [...], disregarding any diminution in value due to the nationalisation itself or the anticipation thereof, and excluding consideration of events thereafter that might have increased or decreased the value of the shares’.³²⁴ The arbitral tribunal in *Compania del Desarrollo de Santa Elena v. Costa Rica*³²⁵ also observed that ‘there is no dispute between the parties as to the applicability of the principle of full compensation for the *fair market value of the property, i.e., what a willing buyer would pay to a willing seller*’.³²⁶

The IVS 2007 include details as to what is understood by ‘willing buyer’ and ‘willing seller’³²⁷. In line with the opinions issued by various arbitral tribunals, under the IVS, a **willing buyer** is a person who is determined, but not constrained to acquire an investment.³²⁸ A potential willing buyer will not buy the investment at any given price

³²² The arbitral tribunal in *CME v. The Czech Republic* also pointed out that ‘one of the best possible indicators of an enterprise’s fair market value is what an actual willing buyer thinks it is worth’ (para. 140).

³²³ Emphasis added.

³²⁴ *INA Corporation v. Iran*, 8 Iran-US Claims Tribunal, 1985 – 373, 379.

³²⁵ For an analysis of the arbitral award rendered by the ICSID tribunal in *Compania del Desarrollo de Santa Elena v. Costa Rica*, please refer to Charles Brower, Jarrod Wong, *General Valuation Principles: The Case of Santa Elena* (2005), in *International investment law and arbitration: Leading cases from the ICSID, NAFTA, bilateral treaties and customary international law*, Todd Weiler (Editor), 2005. Available at SSRN: <http://ssrn.com/abstract=1518133>.

³²⁶ *Compania del Desarrollo de Santa Elena v. Costa Rica*, ICSID Case No. ARB/96/1, 17 February 2000, para. 73.

³²⁷ Definitions of willing buyer and willing seller are not included in IVS 2013.

³²⁸ IVS, Eighth Edition, 2007, p. 77.

and would not pay a higher price than the price that the market requires.³²⁹ From this standpoint, the alleged buyer would buy only ‘in accordance with the market realities and expectations at a certain date, rather than in relation to an imaginary market that cannot be demonstrated or anticipated to exist’.³³⁰

Similarly, pursuant to the IVS, a **willing seller** is neither an ‘over-eager, nor a forced seller,’ who would sell at any price, ‘nor one prepared to hold out for a price not considered reasonable in the market’.³³¹ According to the IVS, a willing seller is motivated to sell the property at market terms for the ‘best price attainable in the (open) market after proper marketing, whatever the price may be’.³³² The negotiation position and factual circumstances of the actual owner of the investment subject to valuation are therefore not included in the valuation, because in market based approach valuations the ‘willing seller’ is a hypothetical owner.³³³

3.4.4 Arm’s Length Transaction

Another requirement specific to the market based approach for the purposes of establishing an investment’s market value is that such value is assessed as if the investment subject to valuation would be sold, and respectively bought, in an arm’s length transaction. An arm’s length transaction represents a deal that takes place under terms and conditions not different from those established between independent entities, which would not be willing to underpay or overpay for an enterprise. From this perspective, an arm’s length transaction is different from a related parties’ transaction, (as detailed at sub-section 3.4.4.1 below), as well as from a strategic transaction (as detailed at sub-section 3.4.4.2 below).

Arbitral tribunals point out that, under the market based approach, the market value of an investment must be established in accordance with the value of the investment in an

³²⁹ Idem.

³³⁰ Idem.

³³¹ Idem.

³³² Idem.

³³³ Ibid, p. 78.

arm's length transaction whereby the investment at the centre of the dispute and which is subject to valuation would be transferred from a willing seller to a willing buyer. For instance, in *LG&E v. Argentine*, it has been affirmed that the appropriate method to establish the market value of a publicly-traded corporation is to determine the market value of its shares in an arm's length transaction. As a result, in *LG&E v. Argentine*, the price paid by an investor for a share of the investment, in an arm's length transaction occurred shortly before the government's negative interference with the investment, was considered a reliable evidence of the market value of the investment at the centre of the dispute.³³⁴

3.4.4.1 The Distinction from Related Parties Transactions

While arm's length transactions occur between natural or legal persons that are not bound by a particular relationship (*i.e.*, are not related parties), related parties transactions have been defined as transfers of resources, services or obligations between related parties, regardless of whether a price is charged.³³⁵ Pursuant to the International Accounting Standards, a party is related to another if:

- (a) directly, or indirectly (through one or more intermediaries), the party controls, is controlled by, or is under common control with the entity (this includes parents, subsidiaries and fellow subsidiaries), has an interest in the entity that gives it significant influence over the entity, or it has joint control over the entity;
- (b) the party is an associate of the entity;
- (c) the party is a joint venture in which the entity is a venturer;
- (d) the party is a member of the key management or personnel of the entity or its parent;
- (e) the party is a close family of any individual referred to in (a) and (d);
- (f) the party is an entity that is controlled, jointly controlled or significantly influenced by or for which significant voting power in such entity resides with, directly or indirectly, any individual referred to in (a) and (d).³³⁶

³³⁴ LG & E Energy Corp., LG&E Capital Corp., *LG&E International, Inc. v. The Argentine Republic*, ICSID Case No. ARB/02/1, 25 July 2007, para. 13.

³³⁵ Organisation for Economic Co-operation and Development, *Corporate governance of non-listed companies in emerging markets* (OECD Publishing, 2006), p. 111, with reference to IAS 24.9.

³³⁶ Ibid.

Between related parties, a transaction would usually occur on different terms than regular market terms, and thus the price paid between related parties would not reflect the market value of the enterprise or asset at the centre of the transaction. Consequently, unlike arm's length transactions, transactions between related parties cannot be regarded as an accurate basis or indicator for establishing the market value of an investment.

This perspective has been embraced in the field of investment disputes. By way of example, in *Waguih Elie George Siag and Clorinda Vecchi v. Egypt*, the ICSID tribunal concluded that a prior transaction between the members of the same family with respect to the investment subject to valuation could not be construed as a proper basis for the market based valuation of the investment, as the terms and conditions of such transaction are different from those applicable in an arm's length transaction. The arbitral award issued in this case stated the following:

The Tribunal rejects Egypt's submission that the 1995 sale of shares in Siag Touristic between members of the Siag family provides useful guidance as to the value of the Property and Project. A transaction such as that is self-evidently unlikely to be a reliable proxy for an open-market transaction conducted at arm's length on normal commercial terms.³³⁷

Even though the values involved in transactions between related parties are clearly inadmissible as value indicators under the market based approach to investment valuation, it may also be noted that, the existence and performance of particular business relationships between entities or individuals does not automatically trigger the qualification of the involved entities as related parties. Pursuant to the International Accounting Standards, independent entities are met even in case of: 'two enterprises which simply have a director or key manager in common; two entities who share joint control over a joint venture; providers of finance in the course of their normal business with an enterprise; a single customer, supplier, franchiser, distributor, or general agent

³³⁷ *Waguih Elie George Siag and Clorinda Vecchi v. The Arab Republic of Egypt*, ICSID Case No. ARB/05/15, 1 June 2009, para. 564.

with whom an enterprise transacts a significant volume of business merely by virtue of the resulting economic dependence’.³³⁸

3.4.4.2 The Distinction from Strategic Transactions

As mentioned, under the market based approach, the market value of an investment must be established as the amount which would be exchanged between a willing buyer and a willing seller in an arm’s length transaction, and not in a strategic transaction.

A strategic transaction implies the purchase of enterprises or assets expressly because specific characteristics of the acquired goods, either alone or in conjunction with other assets of the buyer, would benefit the buyer or a narrow group of buyers more than it would benefit an independent buyer. Should an investment have a special or strategic value to a potential buyer, such buyer could be willing to pay a price higher than usual in order to acquire the respective investment. For this reason, under the market based approach to valuation, the market value of an investment, as established in an arm’s length transaction, is different from the value that may be implied for the same investment in a strategic transaction, as the latter would correspond to a so-called ‘special value’.

The IVS point out that the market value must be calculated without taking into account ‘a price level uncharacteristic of the market or inflated because of an element of special value’.³³⁹ Special value can be met in cases when an asset or an enterprise has the attributes that make it more attractive to a particular buyer, or to a limited category of buyers, than to the general body of buyers in a market;³⁴⁰ such attributes may include the ‘physical, economic or legal characteristics of an asset’.³⁴¹

³³⁸ IAS 24.11, quoted in Organisation for Economic Co-operation and Development, *Corporate governance of non-listed companies in emerging markets* (OECD Publishing, 2006), p. 111.

³³⁹ IVS, Eighth Edition, 2007, p. 78.

³⁴⁰ IVS 2013 also define special value as ‘an amount that reflects particular attributes of an asset that are only of value to a special purchaser’ (IVS 2013, International Valuation Standard Definition, at <http://standards.ivsonline.org/mod/glossary/view.php?id=107>, accessed on 7 January 2015).

³⁴¹ IVS, Eighth Edition, 2007, p. 91.

A particular type of special value is synergistic value, *i.e.*, the value that arises from the combination of two or more assets (or enterprises), which create a new asset (or a new enterprise), that has a value higher than the sum of its constituent parts seen individually.³⁴² Synergistic value is one of the potential reasons why actual buyers would pay for certain enterprises or assets more than their market value.³⁴³

Pursuant to the IVS, determining the market value under the market based approach to valuation ‘requires the disregard of any element of special value because at any given date there is a willing buyer, not a particular willing buyer’.³⁴⁴

The practice of arbitral tribunals also indicates that, for the purposes of establishing the value of an investment under the market based approach to valuation, any element of special or strategic value should be excluded.³⁴⁵ For instance, in *CME v. The Czech Republic*, the arbitral tribunal established that the price involved in a prior transaction involving ‘strategic value’ does not constitute, from a market based approach perspective, a reliable basis for establishing the value that the claimant’s investment would have in an arm’s length transaction. The tribunal decided that:

[...] the payment for the purchase of the CME shares held by Nova Consulting was not an arm’s length transaction and is, therefore, not a reliable basis for a valuation. On July 18, 1997, James Cox, director of corporate planning at CME Ltd, reported that the implied value of the payment to Dr. Zelezny was significantly above the market value of CNTS. It was recognised by CME at that time that the payment was extremely high and represented a “strategic” value rather than the “genuine” value of the shares”.³⁴⁶

³⁴² Ibid.

³⁴³ Marboe, *supra* note 9, at 177.

³⁴⁴ IVS, Eighth Edition, 2007, p. 91.

³⁴⁵ The principle of excluding elements of special value for the purposes of establishing the value of investments under the market based approach to valuation does not contradict, but complements, the general principle set forth by the case law pursuant to which the assessment of value by tribunals must take into account all relevant circumstances of the case (as referred to in *Phillips Petroleum Company Iran v. The Islamic Republic of Iran, The National Iranian Oil Company*, Award No. 425-39-2, 21 Iran-U.S. C.T.R. 79 (29 June 1989), para. 123), including as regards the particular features of the investment.

³⁴⁶ *CME Czech Republic B.V. (The Netherlands) v. The Czech Republic*, Award of 13 March 2003, para. 357.

This principle of excluding elements of special value for the purposes of establishing the value of investments under the market based approach does not contradict the general rule stated by the case law pursuant to which the proper ‘determination of value by a tribunal must take into account all relevant circumstances’³⁴⁷ of the case, including the particular features of the investment. Instead, the above principles complement each other, and as a consequence the arbitral tribunal, after considering all the relevant circumstances specific to a certain investment, must assess the amount that a hypothetical independent buyer, to whom the investment does not have a special or synergistic value, would pay for the respective investment in an arm’s length transaction.

3.4.5 Parties Acting Knowledgeable and Without Compulsion

In order to assess the value of an investment under the market based approach, both the hypothetical willing buyer and the hypothetical willing seller must be knowledgeable, in other words informed, to a satisfactory extent, about the characteristics of the investment, its actual and potential uses, the state of the market as of the valuation date etc.³⁴⁸

In *Azurix v. Argentina*, the value of an investment assessed pursuant to the market based approach to valuation has been referred to as the value arising from a hypothetical transaction in which ‘both [parties] have reasonable knowledge of the relevant facts’.³⁴⁹

In connection with the requirement that parties must act knowledgeable, IVS provide that, for the purposes of establishing the fair market value, the willing buyer and the willing seller must also act prudently. As the prudence requirement is concerned, each party is supposed to act with due diligence, to its best interest, and to aim to reach the most advantageous terms of the transaction.³⁵⁰ Pursuant to IVS, prudence must be

³⁴⁷ *Santa Elena v. Costa Rica*, Award of 17 February 2000, para. 92.

³⁴⁸ IVS, Eighth Edition, 2007, p. 78.

³⁴⁹ *Azurix Corp. v. The Argentine Republic*, ICSID Case No. ARB/01/12, 14 July 2006, para. 424.

³⁵⁰ IVS, Eighth Edition, 2007, p. 78.

assessed in view of the ‘state of the market at the date of valuation, not with benefit of hindsight at some later date’.³⁵¹

Similarly, the lack of compulsion refers to the fact that both the potential buyer and the potential seller are motivated to carry out the transaction, but not forced to complete it.³⁵²

The ‘lack of compulsion’ condition has been referred to, indirectly, in *Starrett Housing Corp. v. The Islamic Republic of Iran*, a case in which the market value of an investment established under the market based approach was regarded as the ‘price that a willing buyer would pay to a willing seller in circumstances in which each had good information, each desired to maximize his financial gain, and neither was under duress or threat’.³⁵³ This perspective is also endorsed in more recent arbitration practice, including in the arbitral awards in *Siemens v. Argentine*,³⁵⁴ *Parkerings – Compagniet AS v. Republic Of Lithuania*³⁵⁵ and *CME v. The Czech Republic*.³⁵⁶

³⁵¹ Ibid.

³⁵² Ibid.

³⁵³ *Starrett Housing Corp. v. The Islamic Republic of Iran*, Case No. 24, Final Award No. 314-24-1, August 14, 1987.

³⁵⁴ *Siemens AG v. The Argentine Republic*, ICSID Case No. ARB/02/8, 6 February 2007, at para. 325, with reference to *Starrett Housing Corp. v. the Islamic Republic of Iran*.

³⁵⁵ *Parkerings-Compagniet AS v. Republic of Lithuania*, Arbitration Case No. ARB/05/8, 11 September 2007, para. 207.

³⁵⁶ *CME Czech Republic B.V. (The Netherlands) v. The Czech Republic*, Award of 13 March 2003, para. 98.

4. THE INCOME BASED APPROACH FOR THE VALUATION OF INVESTMENTS IN ARBITRAL DISPUTES

The income based approach (also referred to as the ‘income approach’ or ‘income capitalisation approach’³⁵⁷) is the most recent of the three main groups of valuation methods used in investment arbitration for the calculation of the value of investments at the centre of arbitral disputes (in addition to the market based and asset based approaches). The income based approach comprises methods that translate the anticipated economic benefits to be obtained by an investment into a single amount indicating the value of such benefits as of the valuation date.³⁵⁸

IVS 2013 state that the income based approach ‘provides an indication of value by converting future cash flows to a single current capital value’,³⁵⁹ while IVS 2007 use the terms of ‘income approach’ and ‘income capitalisation approach’³⁶⁰ interchangeably in order to designate ‘a general way of estimating a value indication of a business, business ownership interest, or security using one or more methods wherein a value is estimated by converting anticipated benefits into capital value’.³⁶¹ Very similar definitions of the income based approach have also been adopted by various national and trans-national accountancy and valuation bodies. By example, the American Institute of Certified Public Accountants (‘AICPA’) defines the income based approach as ‘a general way of determining a value indication of a business, business ownership interest, security, or intangible asset using one or more methods that convert anticipated economic benefits into a present single amount.’³⁶²

³⁵⁷ Marboe, *supra* note 9, at 205 *et seq.*

³⁵⁸ Kantor, *supra* note 11, at 9.

³⁵⁹ IVS 2013, Definitions – Standards and Technical Information Papers, available at <http://standards.ivsonline.org/course/view.php?id=3#section-3> (accessed on 10 January 2015).

³⁶⁰ IVS, Eighth Edition, 2007, International Valuation Guidance Note No. 6 (Business Valuation), para. 5.14.2.2.2 (at p. 245) and para. 5.14.2.1 (at p. 244).

³⁶¹ IVS, International Valuation Guidance Note No. 6 (Business Valuation), para. 3.22, p. 231.

³⁶² American Institute of Certified Public Accountants, *International Glossary of Business Valuation Terms*, available online at: www.aicpa.org/InterestAreas/ForensicAndValuation/Membership/DownloadableDocuments/Intl%20Glossary%20of%20BV%20Terms.pdf (accessed on 20 August 2012).

The income based approach is grounded on the idea that the value of an investment at a particular moment is given by the future financial benefits that such investment might bring to its owners, which must be nevertheless discounted to reflect their value as of the valuation date.³⁶³ This idea is interconnected with the conception pursuant to which an informed buyer would pay for an investment no more than the amount equal to the present value of anticipated future income of the respective investment.³⁶⁴

The income based approach is regularly used for the assessment of operating investments, as such approach can take into account the actual earnings and cash flows of each company in order to assess its future benefits, which are subsequently adjusted by applying a discount rate or capitalization factor aimed at transposing the risks involved in the companies' activity in the valuation result.³⁶⁵

The income based approach includes one of the most frequently used methods for the valuation of investments in investor-state arbitration proceedings, namely the discounted cash flow (DCF) method. In addition to the DCF method, the income based approach also comprises other valuation methods, namely the adjusted present value method and the capitalized cash flow method (also known as the capitalization of earnings method).³⁶⁶ These methods might be sometimes identified by other names: for instance, instead of the 'capitalized cash flow', the name of 'single period earnings' has been used.³⁶⁷ Considering the overwhelming prevalence of the application of the DCF method over the other methods pertaining to the income based approach (especially investment arbitration proceedings), the present chapter focuses on the DCF method (in section 4.1 – *The Discounted Cash Flow Method*) and analyses more concisely the APV

³⁶³ For details, please refer to Theodore Grossman, John Leslie Livingstone, *The Portable MBA in Finance and Accounting* (John Wiley & Sons, Inc., 2009), Part II (*Financial Management*), chapter 4 (*Discounted cash flow*) and chapter 6 (*Planning and Expenditure*), subsection on 'Discounting Cash Flows'.

³⁶⁴ James Catty, *Wiley Guide to Fair Value Under IFRS* (Wiley, 2010), p. 440.

³⁶⁵ James Hitchner, Michael Mard, *Financial valuation workbook* (Wiley & Sons, 2003), p. 111.

³⁶⁶ Kantor, *supra* note 11, at 10.

³⁶⁷ James Hitchner, *Financial Valuation, Applications and Models* (3rd Edition, Wiley & Sons, 2011), p. 121.

and CCF valuation methods (in section 4.2 – *Other Income Based Valuation Methods*) below.

4.1 The Discounted Cash Flow ('DCF') Method

4.1.1 The concept of DCF – Background and Application in Investment Arbitration

4.1.1.1 Origin and Underlying Principles

The DCF method, also known as the 'net present value calculation',³⁶⁸ is one of the most widely-used methods for the valuation of businesses and investments in general. It was first articulated during the 1930s, by the economist Irving Fisher³⁶⁹ in his book 'The Theory of Interest' (1930) and further expounded upon by economist John Burr Williams, in 'The Theory of Investment Value' (1938).³⁷⁰ Since then, the method gained wide recognition, so that, currently, the DCF method is one of the most commonly used methods for the valuation of entire companies.³⁷¹ Management consultancy firms and investment banks regularly employ particularly the DCF method in the field of company valuation.³⁷²

The DCF valuation method is grounded on the idea that the value of a certain amount of money at a particular date is different from the value of the same amount at a subsequent

³⁶⁸ For details, please refer to Daniel Whitney, *Economic Analysis of Assembly Systems* (course presentation for the Massachusetts Institute of Technology, available at http://ocw.mit.edu/courses/mechanical-engineering/2-875-mechanical-assembly-and-its-role-in-product-development-fall-2004/lecture-notes/cls21_ecn_anlys4.pdf, as accessed on 28 June 2011).

³⁶⁹ For further details, please refer to Robert Loring Allen, *Irving Fisher: A Biography* (John Wiley and Sons, 1993).

³⁷⁰ For further details, John Burr Williams, *The Theory of Investment Value* (Harvard University Press, 1938, reprinted in 1997 by Fraser Publishing), as well as to http://www.12manage.com/methods_dcf.html (accessed on 4 July 2011).

³⁷¹ Wouter De Maeseneire, Luc Keuleneer, *Valuation of companies: discounted cash flow, adjusted present value, decision tree analysis and real options*, chapter in Luc Keuleneer, Willem Verhoog (editors), *Recent trends in valuation: from strategy to value* (John Wiley & Sons, 2003), p. 9.

³⁷² Dennis Schön, *The Relevance of Discounted Cash Flow (DCF) and Economic Value Added (EVA) for the valuation of banks* (GRIN Verlag, 2003), p. 6.

date³⁷³ in the future (and, *vice versa*, that an amount of money to be obtained in the future would have a different value at a prior moment). Thus, the DCF method aims to convert the anticipated earnings that an investment should bring to its owners, to the value of such earnings as of the valuation date. In other words, under the DCF method, the sum of future cash flows projected for a certain period of time is discounted back to the present value by using a discount rate.³⁷⁴

When assessing the value of an investment pursuant to the DCF method, a valuation professional or arbitrator generally observes the following main steps:

- (i) estimate all the future expected cash flows of the investment and their timing;
- (ii) assess how 'risky' each of the future expected cash flow is;
- (iii) discount each future cash flow back to the present time using a rate of return that reflects the riskiness of the cash flow.³⁷⁵

Nevertheless, in case of companies established for an unlimited period of time, the assessment must also consider the fact that, although in theory such an enterprise could produce cash flows indefinitely, a valuation cannot accurately foresee and reflecting the valuation cash flows which would be produced by the respective company after a reasonable period of time has passed.³⁷⁶ As it would be impossible to estimate all cash flows to be generated by an investment during an unlimited period of time, analysts assume that, after a certain number of years (in the so-called 'terminal year'), the company matures and reaches a point when its growth rate becomes lower than the cost of capital rate.³⁷⁷ Thus, the valuation professionals use the concept of 'terminal value' in order to designate the compounded value of all the cash flows occurring beyond a

³⁷³ Randolph Kirchain, *Engineering Economics: Comparing Financial Characteristics of Design Options*, (Massachusetts Institute of Technology, Department of Materials Science & Engineering, slide 10, available at http://ocw.mit.edu/courses/materials-science-and-engineering/3-080-economic-environmental-issues-in-materials-selection-fall-2005/lecture-notes/lec_ee1.pdf, as accessed on 6 July 2011).

³⁷⁴ V. Rajarao, 'Determining Damages in Cross-Border Dispute' (2007), in *Transnational Dispute Management*, Provisional Issue, 3, referred by in Ripinsky, Williams, *supra* note 10, at 195.

³⁷⁵ Tom Gats, *Trading and valuing Internet and high tech stocks: a practitioner's guide*, Financial World Publishing, 2002, p. 42.

³⁷⁶ *Ibid*, p. 5.

³⁷⁷ *Ibid*, p. 45.

satisfactory several-year projection period ending with the terminal year³⁷⁸, while at the same time allowing for the limitation of cash flow projections to the terminal year.³⁷⁹ In cases such as the one referred to above, the DCF valuation is more elaborated, and typically includes the following stages: (i) setting a realistic and clear forecast period (usually, of five (5) to 10 (ten) years), where the last year is the terminal year; (ii) forecasting and calculating the cash flows obtainable by the investor over the explicit forecast period; (iii) forecasting the constant growth of all cash flows after the terminal year, and calculating the terminal value of the investment; (iv) discounting the cash flow estimated for the forecast period to the valuation date; (v) discounting the terminal value to the valuation date; and (vi) summing up all the discounted present values to reach an overall estimate of the company's value.³⁸⁰

The economic theory stresses the significance of the assumptions employed for the application of the DCF method, as well as the importance of the accuracy of the discount rates involved. This importance is also reflected by the IVS 2013, which define the DCF method as 'a method within the income approach in which a discount rate is applied to all future projected cash flows to estimate the present value'.³⁸¹ Also, according to IVS 2007 the DCF method represents:

a financial modelling technique based on explicit assumptions regarding the prospective cash flow to a property or business. As an accepted methodology within the income approach to valuation, DCF analysis involves the projection of a series of periodic cash flows either to an operating property, a development property, or a business. To this projected cash flow series, an appropriate, market-derived discount rate is applied to establish the present value of the income stream associated with the property or business. [...] The series of periodic net operating incomes, along with an estimate of the reversion/terminal

³⁷⁸ Otto Max Schaefer, *Performance Measures in Value Management: A model approach to explain the CVA and EVA Measures* (Eric Schmidt Verlag, 2002), pp. 83-84: 'Predicting the future cash flow to infinity is not realistic and in the practice of corporate valuation avoided by introducing a terminal value TV. The terminal value represents the expected cash flow beyond the explicit forecasting horizon. [...] The terminal value represents the present value of all future periods beyond time *n* in terms of *n* Euro'.

³⁷⁹ For further details, please refer to [http://en.wikipedia.org/wiki/Terminal_value_\(finance\)](http://en.wikipedia.org/wiki/Terminal_value_(finance)) (accessed on 4 April 2013).

³⁸⁰ Tom Gats, *supra* note 375, at 46-47.

³⁸¹ IVS 2013, Definitions – Standards and Technical Information Papers, available at <http://standards.ivsonline.org/course/view.php?id=3#section-3> (accessed on 5 December 2014).

value, anticipated at the end of the projection period, is then discounted. In the case of development properties, estimates of capital outlays, development costs, and anticipated sales income are estimated to arrive at a series of net cash flows that are then discounted over the projected development and marketing periods. In the case of a business, estimates of periodic cash flows and the value of the business at the end of the projection period are discounted.³⁸²

4.1.1.2 Acceptance in Investment Arbitration

Although widely used in economy and business, the DCF method does not have a formal recognition in the main instruments regulating the legal regime of disputes between foreign investors and host states (as the ICSID Convention, the Energy Charter Treaty or NAFTA do not include any references to the DCF method). Nevertheless, there are several other instruments of a legal nature and a multitude of scholarly writings which demonstrate that the DCF method may be validly used for the purposes of assessing the value of investments in international arbitration, provided that certain conditions are met. For instance, the use of DCF in investment arbitration is expressly referred to in the World Bank Guidelines on the Treatment of Foreign Direct Investment, which set forth the following:

without implying the exclusive validity of a single standard for the fairness by which compensation is to be determined and as an illustration of the reasonable determination by a State of the market value of the investment [...], such determination will be deemed reasonable if conducted as follows: (i) for a going concern with a proven record of profitability, on the basis of the discounted cash flow value; [...]. For the purpose of this provision: [...] “discounted cash flow value” means the cash receipts realistically expected from the enterprise in each future year of its economic life as reasonably projected minus that year’s expected cash expenditure, after discounting this net cash flow for each year by a factor which reflects the time value of money, expected inflation, and the risk associated with such cash flow under realistic circumstances.³⁸³

On the basis of the World Bank Guidelines’ formal recognition of the applicability of DCF for establishing the value of investments, and thus the compensation due to the affected investors in investor-state arbitration proceedings, the DCF method is widely regarded as one of the methods which may be successfully used in investment arbitration

³⁸² IVS, Eighth Edition, 2007, International Valuation Guidance Note No. 9, Discounted Cash Flow Analysis for Market Valuation and Investment Analyses, p. 266.

³⁸³ The World Bank Guidelines on the Treatment of Foreign Direct Investment, art. IV (*Expropriation and Unilateral Alterations or Termination of Contracts*), para. 6.

proceedings, if a number of circumstances are fulfilled. This fact has been affirmed by the investment arbitration doctrine, which expressly stated the following:

[...] the purpose of compensation in expropriation cases is to return to the claimant the full value of its investment. One of the most popular methods for determining this value is the discount cash flow method (“DCF”). This determines compensation by estimating the cash flow which an asset would be expected to generate over the course of its life, and then discounting that cash flow by a factor which reflects the time value of money and the risk associated with such cash flow.³⁸⁴

A number of legal authors referred to the scope of application of the DCF method in investment arbitration proceedings and its main elements. Pursuant to Charles N. Brower and Michael Ottolenghi:

DCF method is an income based method of valuing an ongoing enterprise or a long-term contractual right, for example to exploit a natural resource. Briefly stated, the DCF method values the relevant object based on its ability to create financial benefits for the owner in the future. The actual analysis required by the DCF method is a three-step process: first, a calculation must be made of the anticipated future cash flows to be generated from the enterprise for each year during the anticipated life of the enterprise or agreed term of the contract; second, there must be a calculation of future costs; and, third, there must be a determination of an appropriate discount rate to be applied to future profits to reduce them to present value.³⁸⁵

The above explanation synthesizes the general approach taken by the doctrine and the practice of arbitral tribunals with respect to the applicability of the DCF method (however, without including references to the risk factor and the terminal value involved).

Although the initial trend in the practice of arbitral tribunals was that the applicability of DCF in investment arbitration should be regarded with scepticism³⁸⁶, currently the DCF method is considered an appropriate method for the determination of the value of certain types of investments (*e.g.*, ongoing businesses). The ICSID tribunal in *Amco Asia*

³⁸⁴ Michael Pryles, *Lost Profit and Capital Investment*, 2008 (article available at http://www.arbitration-icca.org/media/0/12223892171920/damages_in_the_international_arbitration_paper.pdf), p. 8.

³⁸⁵ Charles Brower, Michael Ottolenghi, *Damages in Investor-State Arbitration*, chapter in Arthur W. Rovine (editor), *Contemporary issues in international arbitration and mediation: The Fordham Papers 2007* (Martinus Nijhoff Publishers, 2008), p. 78.

³⁸⁶ Marboe, *supra* note 9, at 206.

Corp v. Indonesia was, to our knowledge, the first arbitral tribunal to recognize and apply a DCF valuation in investment arbitration proceedings, in 1984.³⁸⁷ Subsequently, the DCF became widely used by other arbitral tribunals, including in the practice of the Iran-US Claims Tribunal. By way of example, three years later (in 1987), the Tribunal in *Amoco International Finance v. Iran* recognised the applicability of the DCF method in international investor-state arbitration, and stated that:

the first step of valuing an asset pursuant to the DCF method must be to project from the valuation date onward the most likely revenues and expenses of the going concern, year by year. The revenues less the expenses will give the future cash flow. The second step will be to discount the projected net cash flow to its 'present value' as of the valuation date by applying a discount rate.³⁸⁸

The increasing recognition of the DCF method in particular and of the income based approaches in general is demonstrated by the large number of arbitral awards that relied on the DCF: *Starret Housing Corp. v. Iran*, *Phillips Petroleum v. Iran*, the Argentinean cases (*CMS v. Argentina*, *Enron v. Argentina*, *Sempra Energy v. Argentina*, *LG & E v. Argentina*), *ADC v. Hungary*, *CME v. Czech Republic* etc.

4.1.2 Aspects Relevant for the Application of the DCF Valuation Method

The main matters relevant in the context of investment arbitration for the purposes of implementing a DCF valuation regard (i) the relevant timeframe to be considered for valuation purposes, (ii) the financial indicators used to assess the cash flows to be generated by the investment, (iii) the discounting mechanism to be applied to the expected cash flow for the purposes of calculating the value of such cash flows as of the valuation date, and (iv) the investment's terminal value. These aspects are analysed below, with reference to the relevant investment arbitration jurisprudence.

³⁸⁷ *Amco Asia Corp. v. Republic of Indonesia*, Award of 20 November 1984 (Amco I); *Amco Asia Corp v. Republic of Indonesia*, Award of 5 June 1990 (Amco II).

³⁸⁸ *Amoco International Finance v. Iran*, Award of 14 July 1987, 15 Iran-US Claims Tribunal 189, para. 213.

4.1.2.1 Timeframe Relevant for Establishing Future Cash Flows

DCF valuations include, as a first step, forecasting and assessing the future cash flows to be generated by the investment subject to valuation. The process of forecasting the future cash flows also implies to establish the timeframe in which the cash flow will be generated and estimated. When determining the relevant timeframe, a distinction must be made between investments which have a pre-determined, limited lifespan (*e.g.*, a concession agreement or a take-or-pay contract extending over a particular number of years, a project company incorporated as a special purpose vehicle having a limited duration, a right deriving from a build-operate-transfer contract, where the operational phase is limited to a certain number of years), and investments which have an unlimited duration, and could theoretically continue their existence for an indefinite period of time in the future (*e.g.*, a joint venture between the host state and the foreign investor, established for an unlimited period of time).³⁸⁹

In the case of investments with a limited lifespan, the forecasting period should match, in principle, the estimated duration of the investment or the contractual term during which the specific rights of the investor are originating. This matter was referred to, *inter alia*, by the arbitral tribunal in *ADC v. Hungary*, where the tribunal noted the following:

115. The Master Agreement also provided that the ATAA and the Project Company would enter into an operating period agreement, which would grant to the Project Company, subject to certain conditions, the right to conduct the terminal operations and to collect the terminal revenues. It was also intended that the initial term (“Initial Term”) of the Master Agreement would be twelve years from the operations commencement date (“Operations Commencement Date”), which would be extended under certain conditions up to six additional years. [...]

118. Concurrently with the execution of the Master Agreement on March 31, 1995, ADC formed the Project Company, which was registered as a one-member limited liability company on June 15, 1995, with legal effect as of March 31, 1995. The Project Company was established by ADC for the limited purposes of the Project. Its objects included incurring and servicing Airport Project debt, funding construction of the Airport Project, preparing operation and asset management plans prior to completion of construction, and operating the

³⁸⁹ Ripinsky, Williams, *supra* note 10, at 196.

terminals following construction. Under the terms of its Charter, the Project Company was established for an initial term of fourteen years. This term could be extended, on one occasion, by no more than four years. [...]³⁹⁰

In this case, the tribunal accepted to estimate the future cash flows to be generated by the investment at the centre of the dispute in connection with the limited lifespan of the project company and, respectively, with the limited term of the Master Agreement. The tribunal considered that the calculations and projections made pursuant to the DCF method, with the due observance of the project's life duration, fulfil the standards of compensation recognised by international investment law:

514. In the light of all of the above, the Tribunal is fully satisfied that (a) the standard of compensation established in the Chorzów Factory case is the appropriate standard applicable to this case; (b) the restitution approach claimed by the Claimants shall accordingly be followed; (c) LECG's adoption of the DCF method is fully justified; and (d) the calculations carried out by LECG in line with the foregoing standard, approach and method are reasonable and reliable and are endorsed by the Tribunal in calculating the final amount of damages.³⁹¹

Notwithstanding the above, licences secured by investors from host states, as well as the contracts executed between host states and investors often provide for an initial term which is subsequently subject to renewal or extension if certain conditions are met. This situation was addressed specifically in *CMS v. Argentina*, where the tribunal considered that it would be speculative to hold that the license would be automatically or unconditionally renewed after an initial term of 35 years. As a result, the tribunal concluded that the relevant timeframe to be used for the calculation of future cash flows was limited to the initial term of the license, without the license renewal to be considered. The award rendered in this case states that:

196. The parties have also disputed another aspect relevant for the determination of rights and obligations under the contract: the duration of the License.

197. In the Claimant's view, TGN is entitled to an extension of the license beyond the initial period of 35 years ending in 2027. This extension would, under the terms of the License, be for an additional ten years, ending in 2037. The Respondent believes, to the contrary, that the License does not entail a right

³⁹⁰ *ADC Affiliate Limited and ADC & ADMC Management Limited v. Republic of Hungary*, (Award), (ICSID Case No. ARB/03/16) (2006), paras. 115, 118.

³⁹¹ *Ibid*, para. 514.

of automatic renewal and is subject to performance requirements that have not been met by the Claimant, as well as to other conditions set forth in Clause 3.2 of the License.

198. The Tribunal notes that the License provides for the right to an additional ten-year extension, but this right is subject to compliance with performance requirements, and has to be requested by the licensee and approved by the Government. A discussion about performance requirements is unnecessary for the Tribunal to reach a conclusion on this aspect of the dispute.

199. Indeed, the License is very clear about the fact that this right is conditional and subject to a number of steps, both substantive and procedural, which might or might not take place. As it would be impossible to establish at present whether these conditions might be met, the Tribunal is persuaded by the Respondent argument to the effect that no damages should be considered beyond the year 2027. This will therefore be the year which the Tribunal will rely on for its determination of damages.³⁹²

Another notable point refers to the fact that the lifespan of an investment may be limited not because of contractually terms and conditions, but because of natural restrictions and circumstances (*e.g.*, an investment consisting in the operation of a mine will be limited to the timeframe within which the resources of the mine will be completely depleted). This matter was noted by the arbitral tribunal in *Glamis Gold Ltd. v. USA*, which estimated that the investment's life duration (and, thus, the relevant timeframe in relation to which future cash flows should be calculated) would be influenced by the mining techniques used for the extraction of gold, as well as by the estimated quantity of gold which was to be extracted:

33. Through open-pit mining techniques, Claimant planned to mine gold and silver with the expectation of removing 150 million tons of ore, and 300 million tons of waste rock, from three large open pits during the Project's projected 19-year life (from 1998 to 2017). The ore would have been processed on-site through conventional cyanide heap-leach processing, yielding an estimated 1.17 million ounces of gold and possibly another 0.5 million ounces through continued exploration.³⁹³

Although the life duration in cases such as the abovementioned one may be determined with a certain degree of certainty by technical means (*i.e.*, the lifespan will comprise the construction phase plus the operational phase required for the extraction of the natural

³⁹² *CMS Gas Transmission Company v. The Argentine Republic*, ICSID Case No. ARB/01/8, 12 May 2005, paras. 196 – 1999.

³⁹³ *Glamis Gold, Ltd. v. United States of America*, Award of 8 June 2009, para. 33.

resource), such calculation is not as precise as the one based on the agreements secured by the investment. The relative imprecision of establishing the life duration of an investment based on the exploitation of natural resources results from the fact that the actual duration of exploitation of a natural resource depends on a multitude of factors, such as the progress of technical means, the work force available to the investors, the investor's actual commitment to achieving targets, regulatory and environmental constraints.

Furthermore, when the investment at the centre of a dispute has an unlimited duration and can virtually carry on its existence forever, a higher degree of uncertainty exists with respect to the timeframe in relation to which the cash-flows of the investment are estimated in a DCF analysis. Pursuant to part of the investment arbitration doctrine, such timeframe should be extended as far as possible in the future, in order *'to increase the precision of the [DCF] analysis and to limit the impact of the terminal value over the overall result'*.³⁹⁴ Generally, a projection period of 5 (five) to 10 (ten) years appears to be accepted by the legal doctrine³⁹⁵ and the practice of arbitral tribunals. An illustrative example in this respect is *CME v. the Czech Republic*, where the forecast period was of 10 (ten) years:

(4) Forecast Period

572. Both experts applied the same methodology in dividing the valuation procedure in two parts: (i) in the front part the "Forecast Period", for which explicit forecast are prepared for each period year by year, which was taken for a ten years' period from 1999 to 2008 and (ii) for the period thereafter in perpetuity for which and estimation of the value of the business at the end of the Forecast Period was made (the "terminal value" or "continuing value") which takes account of the future prospect at the time. For the Forecast Period Monitor relied on the cash flow projections of the CNTS management available until 2005. Thereafter, Monitor made its own extrapolation for the next three years

³⁹⁴ Ripinsky, Williams, *supra* note 10, at 196.

³⁹⁵ Ripinsky, Williams (*supra* note 10, at 196) state that 'forecasting cash flows beyond an initial period of 5-7 years may be impractical'. Marboe (*supra* note 9, at 220) speaks about two or more phases of the projection period, where 'the more immediate phase usually covers a period of three to five years where there are normally sufficiently detailed forecast data available. The years covered in the subsequent phases are normally based on more or less general projections of the detailed forecasts made for the first phase'. Kantor (*supra* note 11, at 178) refers to an 'easy-to understand [projection] periods of five or ten years'.

until 2008, assuming a stable CNTS TV ad market share of 60% and a stable net CNTS ad revenue gross rate of 8.7% [...].³⁹⁶

In order to reduce the possibility of reaching inaccurate calculations of the cash flows to be obtained by an investment during the forecast period, certain tribunals have accepted the forecast period to be split into two or more phases. In *LETCO v. Liberia*³⁹⁷, such period comprised a ‘first-cut’ (of timber) period lasting for a number of years, followed by a ‘second-cut’ (of timber) phase. In this case, the forecasting period was divided into separate phases so as to lead to a more precise assessment of the cash-flows to be generated by the investment in each of the phases, and thus, to an accurate final result of the valuation. The valuation of cash-flows to be obtained during the second phase was based on calculations distinct from the ones prepared for the first phase, and took into account the fixed and variable specific costs incurred by the investment in the second phase.³⁹⁸

4.1.2.2 Indicators Used to Assess Future Cash Flows to be Generated by Investments

In investment arbitration, the main indicators which enable the assessment of the level of future cash flows to be generated by investments are (i) the investments’ track record, (ii) the agreements secured by investments, (iii) the business plans of investments, and (iv) the economic and conditions from the host country. Considering their importance for the outcome of DCF valuations, these indicators are examined below.

(i) The Investments’ Track Records

The past operations of an investment provide useful information for the assessment of the possible benefits that an investment would have generated if it would have continued its existence without any interference from the host state. One of the main legal instruments which expressly states that the

³⁹⁶ *CME v. The Czech Republic*, para. 572.

³⁹⁷ *Liberian Eastern Timber Corporation (LETCO) v. Liberia*, Award of 31 March 1986, paras. 373-376.

³⁹⁸ For further details, Marboe, *supra* note 9, at 242-243.

expected future performance of a business can be derived from its past operations is Decision 9 (*Proposition and Conclusions on Compensation for Business Losses: Types of Damages and Their Valuation*) issued by the Governing Council of the United Nations Compensation Commission. Such Decision stated that:

In the case of the loss of businesses and their earning capacity [...], it can be expected that a number of such businesses can be or could have been rebuilt and resumed. [...] Compensation should be provided if the loss can be ascertained with reasonable certainty based on prior earnings or profits. For example, the loss of any earnings or profits during the relevant time period could be calculated by a multiple of past earnings and profits corresponding to that time period.³⁹⁹

This approach has been implemented in *Phillips Petroleum v. Iran*. In this case, although the tribunal acknowledged the risk raised by the reliance on past data for the purposes of estimating future earnings, it nevertheless admitted that information provided by past operations proves valuable when a certain degree of predictability of earnings may be observed. In the tribunal's view, the predictability of future cash flows may be taken into account when there are sufficient factors which would indicate that no considerable fluctuations will occur in the field where the enterprise subject to valuation is carrying out its activities, during the timeframe for which the valuation exercise is carried out. The tribunal held that:

It has been argued that past earnings are, because of unpredictable changes in the future, an unreliable measure of value here. Past earnings may, however, be used for valuation where future earnings are expected to be reasonable predictable on the basis of past earnings. While such factors as production and price of oil – and hence cash-flow – could be expected to vary from year to year throughout the remainder of the JSA, overall fluctuations in these factors could be expected to be not too significant.⁴⁰⁰

Likewise, in *NG v. Argentina*, the arbitral tribunal took into account the particularities of the nine-year history of operations of Transener, the

³⁹⁹ United Nations Compensation Commission, Governing Council Decision 9 – *Proposition and Conclusions on Compensation for Business Losses: Types of Damages and Their Valuation*. S/AC/26/1992/9 (March 1992).

⁴⁰⁰ *Phillips Petroleum Co Iran v. Iran*, 21 Iran-US Claims Tribunal (1989) 79, para. 163.

company subject to arbitration. The tribunal considered Transener's past profitability and capacity to reduce operating costs in order to assess the prospective benefits which would have been obtained by the investment under normal operating conditions, if no negative interference would have taken place:

276. [...] In order to function properly, the DCF approach requires that the concern in question must have a history of profitable operation. This does not appear to be a major issue in this case, since Transener has a history of almost nine years of successful operation. [...]

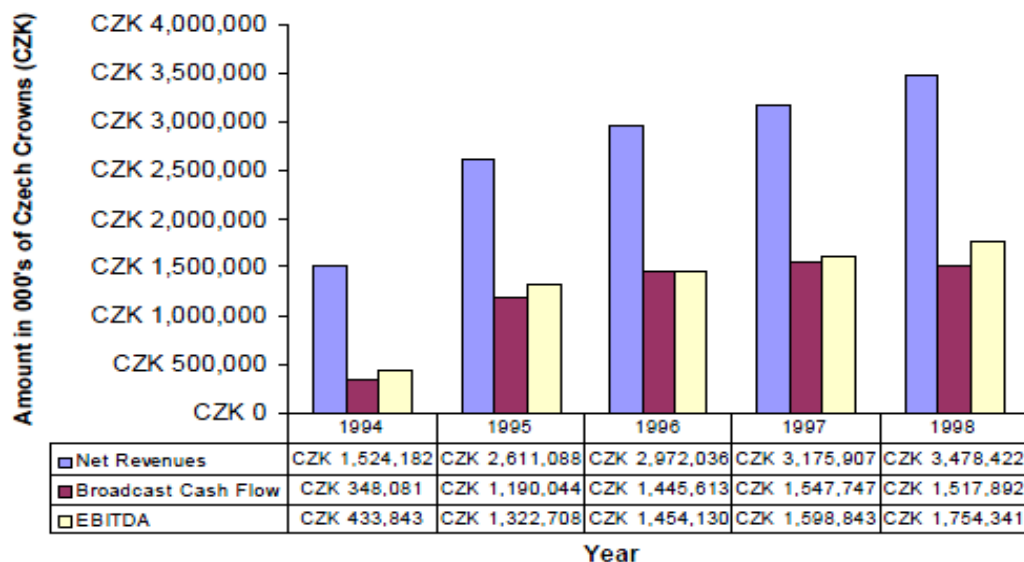
277. [...] the performance of Transener was reviewed in detail by ENRE in the ordinary (pre-crisis) 1998 five-year tariff review, which essentially ratified the rate structure and other regulatory parameters. ENRE's review recognized that Transener's operations were profitable and, also, that it had resulted in reduced outages and operating costs. Similar operating conditions and results continued through the end of its accounting period in December 2001.⁴⁰¹

Another investment arbitration case where the arbitral tribunal carried out an analysis of the track record of earnings pertaining to the company subject to arbitration was *CME v. the Czech Republic*. In this case, the arbitral tribunal extensively scrutinized the past operations of CNTS, the television broadcasting company at the centre of the dispute, in order to derive the probable amount of future cash flows which would have been generated in the future by the respective investment. The tribunal relied on an economical and financial analysis of CNTS made by an independent accounting firm (*i.e.*, Arthur Andersen) with respect to CNTS's evolution between 1994 and 1998, and held the following:

124. The following table summarizes CNTS's revenues, broadcast cash flow ("BCF") and EBITDA for each of the full years of CNTS's operation, in 1994-98, in Czech crowns:

⁴⁰¹

National Grid plc v. The Argentine Republic, UNCITRAL (UK/Argentina BIT), Award, 3 November 2008, paras. 276-277.



125. As this chart shows, CNTS was a company that, as of 1990, has experienced remarkable growth, stability and success. Even the most significant adverse financial event of the second half of the 1990s – the late summer 1998 Russian debt crisis, which precipitated a near collapse of the ruble, a worldwide drop in stock indexes and a huge reduction in investor confidence in the financial prospects of companies in Russia and nearby Central European countries – touched Nova’s growth only very slightly and temporarily. [...] CNTS faced no major financial vulnerabilities, apart from the threat to its continued legal entitlement to exploit the economics of the CET 21 license on an exclusive basis, during this period. It funded its own operations and generated substantial and reliable earnings for CNTS from 66% to the 99% it has held since August 1997.⁴⁰²

The tribunal’s analysis focused on CNTS’s net revenues, broadcast related cash flows and EBITDA indicators, and was confirmed by other valuation methods employed by the arbitral tribunal in the same case, as well as by the subsequent evolution of CNTS’s actual business operations.

On the basis of the above examples, it may be concluded that, as part of a DCF valuation, the information offered by the record of past operations of an investment at the centre of a dispute can be successfully used to estimate future cash flows to be generated by the respective investment. The legal doctrine has even expressed that the historic data of an enterprise’s profitable

⁴⁰²

CME v. the Czech Republic, paras. 124-125.

operations are the best support for future projections.⁴⁰³ However, in order to provide reliable information for the purposes of a DCF valuation, the track record of past earnings must regard a sufficient period of time. Further details regarding the relevance of an investment's track record in relation to the applicability of the DCF method, and regarding the duration which such track record must have in order to allow the application of the DCF method, are included in section 4.1.2.1 below.

(ii) Agreements Secured by Investments

As investments may last for decades, investors and host states often enter into investment contracts in order to regulate their legal relations, depending also on the nature of each envisaged project, the type of economic interests involved and the business field of each investment.⁴⁰⁴ The main types of foreign direct investments that involve contracts among investors and host states may be found in the fields of natural resources (especially oil and gas) and infrastructure.⁴⁰⁵ In the sector of exploration and production of oil, the most commonly used are the concession agreements, participation agreements, production sharing agreements and service agreements. For the development of infrastructure projects, a wide array of agreements are used, including build-operate-transfer (BOT), build-own-operate-transfer (BOOT), refurbish-operate-transfer (ROT), build-lease-transfer (BLT) and build-own and operate (BOO) agreements.⁴⁰⁶

Because certain investments secure revenues primarily on the basis of agreements (for instance, agreements allowing the investor to charge a royalty for making available a service or a infrastructure project to a state institution or to the general public, or power purchase agreements whereby

⁴⁰³ Ripinsky, Williams, *supra* note 10, at 211.

⁴⁰⁴ For further details, Rudolf Dolzer, Christoph Schreuer, *supra* note 4, p. 72.

⁴⁰⁵ Noah Rubins, Stephan Kinsella, *International risk and dispute resolution. A Practitioner's Guide* (Oceana Publications, 2005), p. 31.

⁴⁰⁶ *Ibid*, pp. 34-38.

the host state undertakes to buy a pre-determined amount of energy from the investor during a certain number of years), the future cash flows to be generated by such an investment at a centre of a dispute can be also assessed on the basis of the data provided by the agreements secured by the respective investment.

One of the first international cases which relied on the information included in a contract between a state authority and a private investor for the calculation of future income to be generated by the enterprise set up by the investor was the May Case (*United States v. Guatemala*).⁴⁰⁷ In this case, Robert May, a U.S. citizen, entered into contracts with Guatemala, whereby he took over the operation of the Northern Railroad of Guatemala for one year. For his services, Mr. May was entitled to receive a monthly fee. After he operated the railroad from April to September 1898 and fulfilled his undertakings, the Guatemalan government failed to pay the amounts due to Mr. May for his services. As a result, the operations of the railroad were suspended, and, subsequently, Guatemala attributed the operation of the railway to a new person (*i.e.*, Mr. Roberts). Under these circumstances, Mr. May sought compensation for being removed from the operation of the railroad without payment. The case was decided upon by a sole arbitrator (G. Jenner), who stated that:

Mr. May was, therefore, entitled to carry on his contract for one year from the date of taking over the railroad, or from the 16th of April, 1898, and to receive the profits he would in due course have earned under the contract during the year ending April 16, 1899.

As Mr. May was ejected on the 20th of October, 1898, he is entitled to the profits he would have earned during the five months and twenty-six days between that date and the 16th of April, 1899.

The amount of profits earned during Mr. May's six months' tenure of the railroad is shown by the extract from his books legally certified by the bookkeeper, Mr. Francis, and the auditor, Mr. Fuqua, to be \$116,968.67, or an average net monthly profit of \$19,494.67. Taking that sum as the

⁴⁰⁷

The May Case (*Guatemala v. United States*), Award of 16 November 1900, UN Reports of International Arbitral Awards, Volume XV, pp. 47-75.

measure of Mr. May's profits for the remainder on his terms, we find that he would have earned \$114,369.26 silver or \$41,588.83 gold; in other words, that the value of the property his contract entitled him to enjoy, and of which he was illegally deprived, was the above sum. [...]

I therefore consider that I am dealing fairly by both parties in taking the average net monthly profits earned by Mr. May during the wet season of 1898-99 as the measure of his profits for the whole year.⁴⁰⁸

The idea that a contract can indicate prospective cash flows and profits, and thus, the compensation payable to a foreign investor, was reiterated in the award rendered in the ICSID case of *PSEG v. Turkey*, where the arbitral tribunal stated that:

312. The Claimants also noted that line of decisions, but distinguish the situation where there have been contractual arrangements “that establish the expectation of profit at a certain level and over a given number of years,” which results in the concern regarding speculation being removed. The Tribunal would have no difficulty with this proposition, because in fact *a self-contained and fully detailed contract can well determine a basis for the calculation of future profits*.⁴⁰⁹ However, the Tribunal must also note that in many long-term contracts it is most difficult if not impossible to calculate such future profits with certainty, particularly if the contract is subject to adjustment mechanisms and other possible variations with time.⁴¹⁰

An important issue to be considered in the context of assessing the amount of future cash flows to be generated by an investment on the basis of long-term agreements relates to the fact that valuation of future cash flows to be produced by an investment is not necessarily limited to a mechanical multiplication of the estimated monthly revenues by the total number of months of the agreement. Instead, such calculation should also consider the extension provisions and price adjustment mechanisms included in the agreements secured by the investor/investment, as well the manner in which

⁴⁰⁸ The May Case (*Guatemala v. United States*), Award of 16 November 1900, UN Reports of International Arbitral Awards, Volume XV, pp. 72-73.

⁴⁰⁹ Emphasis added.

⁴¹⁰ *PSEG Global, Inc., the North American Coal Corporation, and Konya Ingin Elektrik Uretimve Ticaret Limited Sirketi v. Turkey*, ICSID Case No. ARB/02/5, Award of 19 January 2007, para. 312.

such aspects influence the overall amount of cash flow to be produced by the investment – as detailed below.

(a) Agreements with Extension or Renewal Provisions

The practice of arbitral tribunals indicates that an investor whose investment is negatively affected by the actions of the host state must be compensated for the future benefits which it would have derived from the investment, if the state interferences had not occurred.⁴¹¹ When tribunals consider that future benefits cannot be established with sufficient certainty, or are speculative, no compensation is awarded for unproven prospective benefits requested by the investors.

In case of investments based on agreements which establish an initial contractual term but also include extension or renewal provisions, this is translated in the fact that, as a matter of principle, arbitral tribunals refuse to grant compensation for the benefits to be generated after the initial term of the agreement expires, if there is no certainty that the agreement would be renewed or extended. One of the cases which reflect this prudent approach is the Shufeldt case (*U.S. v. Guatemala*). There, the United States alleged that Guatemala has implicitly recognised the validity of a concession contract entered into by the claimant, even though the contract has not received the official formal endorsement of all necessary Guatemala authorities. The sole arbitrator involved in the case found out that Guatemala has tacitly approved the performance of the contract by the claimant under specific terms for six years, and has also received the benefits attributable to Guatemala during the same term, aspect which supported the claimant's allegations that Guatemala could not deny the contract's binding power.⁴¹² Although the arbitrator held

⁴¹¹ For further details, please refer to chapter 2, section 2.1.2.1 above.

⁴¹² For an analysis of the application of the concept of 'estoppel in pais' or 'equitable estoppel' to the Shufeldt case (*United States v. Guatemala*), please refer to Bin Cheng, *General principles of law as applied by international courts and tribunals* (Cambridge University Press, 2006), p. 143-144.

that the claimant's statement pursuant to which the existence and validity of the contract was 'sound and in keeping with the principles of international law'⁴¹³, he did not take into account the possible extensions of the contract for valuation purposes.⁴¹⁴ The sole arbitrator decided that:

'The contract at the date of its cancellation or abrogation had been in existence for six years, and the extraction and exploitation of chicle was carried on as a going business which was producing substantial profits, and there is nothing to show that these profits would have not continued to the expiration of the contract. [...] I can see no way to extend the amount of profits beyond those based on the profits actually obtained during the period of six years.'⁴¹⁵

Similarly, in *Bridas v. Turkmenistan*, the tribunal concluded that an additional term of the agreement between the host state and the investor should not be included in the prospective timeframe within which the investment would generate cash flow. The tribunal stated that:

It is obvious that as the matters now stand, the Turkmenistan side would not agree [to the extension of the contract]. Based on the conduct of the Claimant both before and in the arbitration, it is the opinion of the arbitrators that a refusal by the Government and the Respondent would be reasonable and the term would not have been extended beyond 25 years.⁴¹⁶

However, by way of exception to the position adopted in the abovementioned cases, in few instances arbitral tribunals considered that the time periods in relation to which the future cash flows must be calculated for valuation purposes should not be limited to the initial period of the agreement, but should also include the subsequent terms with which the agreement could be extended, if certain conditions are met. When deciding upon such matters, the tribunals took into account the market practices applicable in the industry in which the agreement was concluded, as well as the past performance of the agreement and the conduct of the party which would have benefitted from the

⁴¹³ *U.S. v. Guatemala*, Award of 24 July 1930, UN Reports Of International Arbitral Awards, Volume II, pp. 1079-1102.

⁴¹⁴ *Ibid*, p. 1083.

⁴¹⁵ *Ibid*, p. 1099.

⁴¹⁶ *Bridas SAPIC v. Turkmenistan*, Partial Award of 25 June 1999, quoted in Bishop, Crawford and Reisman, *Foreign Investment Disputes*, supra note 283, at 1270, 1272.

extension of the agreement. This was the case in *CME v. The Czech Republic*, where the tribunal found out that:

605. The parties disputed the possibility that the Nova 12 years' broadcasting license rendered to CET 21 in 1993 would not be renewed at January 31, 2005. Rothschild for this alternative suggested an implied enterprise value for CNTS as of August 5, 1999 at the amount of USD 114 million. The Tribunal cannot accept this argument.

- CET 21's broadcasting license was meanwhile extended by the Media Council of January 22, 2002 by another ten years until 2017 [...].
- SBS did not seriously consider a non-renewal of the license except that non-renewal could be threatened by the interference of Dr. Zelezny in collaboration with the Media Council. [...]
- Generally, broadcasting licenses in Europe are renewed as a matter of ordinary administrative practice and the parties could identify to the Tribunal only one known case (an English broadcasting license) in Europe in which a broadcasting license was not renewed, although the license requirements were fulfilled by the license owner.

The possibility of a non-renewal of the license, therefore, must be disregarded as a matter of fact.⁴¹⁷

(b) Agreements with Renegotiation or Adjustment Mechanisms

In long term investor-state contracts, the parties sometimes include contractual provisions aimed at insulating them from currency risk or inflation, as well as provisions which enable the parties to adjust the contractual terms and financial conditions in accordance with the economic conditions. Such provisions may take the form of renegotiation clauses (pursuant to which the parties are entitled to renegotiate the terms of the agreement, if certain conditions are met or if certain events occur), or adjustment clauses⁴¹⁸ pursuant to which the financial terms of the agreement are automatically adjusted so as to reflect the values of the inflation rate in a

⁴¹⁷ *CME v. The Czech Republic*, para. 605.

⁴¹⁸ For further details, Christoph Schreuer, *The ICSID convention: a commentary (a commentary on the Convention on the settlement of investment disputes between states and nationals of other states)* (Cambridge University Press, 2001), pp. 107-108.

certain period of time, or the value of the consumer price index from a certain date etc.

Renegotiation clauses are aimed at maintaining the contractual and economic equilibrium between the contracting parties. For instance, in order to maintain the contractual balance in the future, the following clause has been inserted in the Model Exploration and Production Sharing Agreement of the Sheikdom of Qatar from 1994:

Art. 34.12. [...] Whereas the financial position of the Contractor has been based, under the Agreement, on the laws and regulations in force at the Effective Date, it is agreed that, if any future law, decree or regulation affects Contractor's financial position, and in particular if the customs duties exceed [...] percent during the term of the agreement, both Parties shall enter into negotiations, in good faith, in order to reach an equitable solution that maintains the economic equilibrium of this Agreement.⁴¹⁹

Adjustment (or adaptation) clauses produce effects more rapidly than renegotiation provisions, and are usually worded so as to enter into force without the parties being required to further discuss and agree upon new contractual clauses. Instead, the simple notification from one party informing the other that a certain event has occurred or that a certain term or condition has been achieved is sufficient for the amendment of the agreement to come into force. One particular type of adjustment clause is a 'price escalation clause' – which is used, *inter alia*, in the natural resources contracts (especially in the gas and petroleum industries) and which allows the automatic price increase based on production prices⁴²⁰ or by reference to certain economic indicators applicable in the respective field (*e.g.*, Crude Oil Price index).

When such re-negotiation or adjustment clauses are included in contracts entered into by investors involved in international disputes, arbitral tribunals

⁴¹⁹ Clause quoted in P. Bernardini, *The Renegotiation of Investment Contracts* (ICSID Review Foreign Investment Law Journal, 1998), and in Rudolf Dolzer, Christoph Schreuer, *supra* note 4, p. 77.

⁴²⁰ William Fox, *International commercial agreements: a primer on drafting, negotiating, and resolving disputes* (4th revised edition, Kluwer Law International, 2009), p. 261.

generally take into account the parties' possibility to amend the terms of the agreement if certain events occurred, or if a certain period of time has elapsed. Such observance is also ultimately reflected in the calculation of future cash flows to be generated by the investment and, consequently, of the value of the investments and the amount of damages due to the investor. For instance, in *CMS v. Argentina*⁴²¹, TGN (the project company in which the claimant held a stake of 30%) had the right to calculate gas transportation tariffs in dollars and to adjust such tariffs every six months so as to reflect the inflation rate, in accordance with the United States Producer Price Index (US PPI).⁴²² Further, TGN benefitted from the possibility of having the price of the tariffs reviewed every five years (during the 'five-year tariffs review'), on the basis of two economic factors reflecting the efficiency and financial parameters of the gas transportation service (*i.e.*, Factor X and Factor K).⁴²³ However, after the commencement of the Argentinean crisis, TGN's requests for the adjustment of tariffs were not endorsed by ENER GAS (the Argentinean regulatory body in the gas industry).⁴²⁴ After CMS commenced arbitration proceedings against Argentina (grounded, *inter alia*, on the denomination of the tariffs to dollars at a rate of one peso per dollar, far below the market rate of approximately 3.6 pesos per dollar), the arbitral tribunal took into account the adjustment mechanism applicable to transportation tariffs for the purposes of establishing the future cash flows which would have been generated by the investment during the remaining term of the license. In the application of the DCF method to the facts of the case, the tribunal stated that:

457. Under the pesification scenario, Mr. Wood-Collins assumes that there will be no increase in tariffs for the whole duration of the License. The Tribunal considers this hypothesis unrealistic. It has received evidence that Argentina has already offered to TGN a 7% tariff increase, albeit

⁴²¹ *CMS Energy Corporation v. Argentina*, ICSID Award of 12 May 2005.

⁴²² *CMS v. Argentina*, para. 57.

⁴²³ *Ibid*, paras. 231-232.

⁴²⁴ *Ibid*, paras. 60-61.

accompanied by some conditions that have been turned down by TGN. With the disappearance of the US PPI adjustment, it would be strange to say the least that TGN would be left in a situation where, as forecasted by Mr. Wood-Collins, its domestic sales revenue would remain completely flat for the next 22 years; under that scenario, TGN's equity remains negative until 2023 (according to Mr. Wood-Collins' report of May 22, 2002) or until 2019 (according to his March 19, 2004, report). Here again, it is difficult to believe that TGN would not have been able to convince ENER GAS that this was an unacceptable situation and that some increase in the tariff was required on the occasion of its Five Year Reviews. The Tribunal has already indicated that, in its forecast, it has allocated a yearly increase of 1.5% in the tariff from 2008 to take account of Argentine inflation. The Tribunal also concludes that, starting in 2008, a 5% increase on the occasion of each Five Year Review should be assumed [...].⁴²⁵

In order to be considered by arbitral tribunals for the purposes of determining future cash flows, the renegotiation or adjustment clauses relevant to the investor must include sufficient evidence so as to allow tribunals to accurately assess the amount of future cash flow and, thus, the overall value of investments. When claimants fail to demonstrate the certainty of the cash flow that would have been generated as a result of the implementation of the adjustment clauses, tribunals may refuse to include such cash flows in the valuation of the investments. Such refusal was issued in *Autostopista Concesionada de Venezuela ('Aucoven') v. Venezuela*, where the claimant, a subsidiary of a US company, concluded a concession agreement whereby it was under the obligation to design, construct, operate and maintain one of Venezuela's highway systems⁴²⁶, and to build a viaduct over the Tacagua Gorge.⁴²⁷ The concession agreement was entered into for a thirty-year term, provided Aucoven's exclusive right to collect tolls from the highway's users⁴²⁸ and also included an adjustment mechanism based on a so-called economic-financial plan, which provided a basis for correlating all the relevant economic and financial variables, in particular investment expenses

⁴²⁵ Ibid, para. 457.

⁴²⁶ *Autostopista Concesionada de Venezuela v. Venezuela*, para. 21.

⁴²⁷ Ibid, para. 22.

⁴²⁸ Ibid, para. 27.

and income.⁴²⁹ If the economic and financial data on which the concession agreement and the economic-financial plan changed, Aucoven was entitled to update and amend the economic-financial plan and, on such basis, Venezuela was supposed to restore the economic-financial equilibrium ('EFE') of the concession agreement. However, after Venezuela rejected a toll increase requested by the Aucoven, the latter commenced arbitration at ICSID. With respect to the adjustment of the contract price, the arbitral tribunal held that:

The Tribunal accepts that the Concession Agreement represents the cash flows which the parties anticipated for the event that no change occurred over the 30-year Concession period. However, the Concession Agreement itself required updates of the EFP if an event listed in Clause 46 occurred. Such updates were intended to restore the EFE, but not to guarantee projected amounts of shareholder flows.⁴³⁰

Even though the tribunal admitted the fact that the concession agreement would have been updated and amended during the 30-year contractual term, it considered that the assessment of the actual amount of the future cash flows was rather speculative in the case at hand (primarily because the adjustment clauses were not doubled to a satisfactory extent by the actual implementation of the project). Consequently, although the tribunal granted Aucoven compensation for out-of-pocket losses and assets contributed to the concession, it did not take the cash flows into account for valuation purposes, and also did not award the claimant any amount for lost profits calculated on the basis of the DCF.⁴³¹

(iii) Business Plans and Forecasts

In order to assess the value of investments at the centre of arbitral disputes under the DCF, the information provided by the business plans and economic forecasts made or ordered by the investors themselves with respect to the investments can also be relied upon. The tribunal in *CMS v. Argentina*

⁴²⁹ Ibid, para. 30.

⁴³⁰ Ibid, para. 356.

⁴³¹ Ibid, chapter V (*Relief*).

expressly stated that the internal business projections made by investors are suitable for the valuation of the investment at the centre of the dispute:

As far as the parties are concerned, Mr. Wood-Collins is the only expert to have estimated the value loss suffered by CMS on its TGN's shares. In doing so, he used the forecasted figures prepared by TGN for internal use in 2000, in the context of an unchanged regulatory environment. [...] The use of a company's internal forecast prepared in the normal course of business is quite acceptable as a starting point in the valuation of a company. The Tribunal sees no reason to reject it.⁴³²

Furthermore, in *ADC v. Hungary*, the tribunal considered that the business plans prepared in relation to the affected investment constituted the best evidence of future cash flows to be generated by the investment:

The Tribunal disagrees since the 2002 Business Plan was approved by ATAA in a letter of December 11, 2001, a few days before the Decree was issued that led to the expropriation and after five drafts had been discussed between the Quota Shareholders. The 2002 Business Plan, therefore, constitutes the best evidence before the Tribunal of the expectations of the parties at the time of expropriation for the expected stream of cash flows.⁴³³

In this context, an important issue in relation to the assessment of future cash flows on the basis of business plans is the reliability and accuracy of such plans. In order to be used for the purposes of establishing the value of an investment in arbitration proceedings, business plans must not be simple allegations of future developments of the business, but instead must be drawn by professionals and grounded on measurable and realistic information. The simple assertions that the enterprise at the centre of a dispute will generate a certain profit and developed a strong client base do not suffice. This was demonstrated in *Azinian v. Mexico*, where the tribunal considered that allegations made by a close business associate of the claimants⁴³⁴ could not

⁴³² *CMS v. Argentina*, para. 422.

⁴³³ *ADC v. Hungary*, para. 507.

⁴³⁴ *Robert Azinian, Kenneth Davitian, & Ellen Baca v. The United Mexican States*, International Centre For Settlement Of Investment Disputes (Additional Facility) Case No. ARB (AF)/97/2, Award of November 1, 1999, para. 7.

be construed as satisfactory evidence regarding the business prospects of the enterprise subject to arbitration going forward:

During the hearings before the Arbitral Tribunal, the plan to use the initial concession to entice new participants was referred to on a number of occasions as “taking the show on the road.” In his oral testimony, Mr. Goldenstein explained that the Claimants’ anticipated US\$ 20 million investment should have been understood as funded by Sunlaw Energy [...]. He did not explain how US\$ 20 million could suffice to build a 200 megawatt power generating plant. More importantly, he could not point to any evidence that any Mexican authority had been appraised prior to signature of the Concession Contract that Sunlaw had lost interest in the project, with the result that it would no longer provide a source of funding.⁴³⁵

Apart from the fact that simple allegations with respect to the investment’s future operations cannot be regarded as proper business plans, in other instances, even the business plans conducted properly, by professionals, have been questioned by arbitral tribunals. Arbitral tribunals noted the fact that certain business plans may be over-optimistic and could reflect primarily the management’s wish to carry out a successful and profitable operation, instead of the actual possibility of the enterprise to obtain the envisaged cash-flows and profits. This was the case in *Waste Management v. Mexico*, where the investor’s business plans were considered by the arbitral tribunal to be grounded on an over-optimistic assessment of the business case of the enterprise at the centre of the dispute. The tribunal stated that:

[...] it is not the function of the international law of expropriation as reflected in [NAFTA] Article 1110 to eliminate the normal commercial risks of a foreign investor, or to place on Mexico the burden of compensating for the failure of a business plan which was, in the circumstances, founded on too narrow a client base and dependant for its success on unsustainable assumptions about customer uptake and contractual performance.⁴³⁶ [...]

The Republic points out that it is a well-established principle of international law that an investor cannot seek compensation from a State because of its own poor performance and weak business planning. The

⁴³⁵ Ibid, para. 27.

⁴³⁶ *Waste Management, Inc. v. United Mexican States* (Number 2), ICSID Case No. ARB(AF)/00/3 (NAFTA), Final Award, 30 April 2004, para. 177.

Republic further submits that international courts and tribunals have repeatedly emphasised that international investment law is not intended to protect investors from the normal commercial risk inherent in their business ventures and in the host country's economic environment, including risk arising from an investor's own conduct.⁴³⁷

However, the practice of investment tribunals indicates that not all investors formulate over-optimistic business plans for their investments, but, on the contrary, certain economic forecasts made by the investors prove pragmatic and rather prudent. In *CME v. The Czech Republic*, the calculations obtained by the valuation of the investment subject to arbitration on the basis of the market based approach (*i.e.*, based on the price involved by a proposed acquisition of the investment by an independent third-party buyer, namely SBS) were verified through the application of the DCF method. While the DCF analysis was grounded on the business plans made by CME in 1999, the assumptions on which the DCF analysis was based have been double-checked, at their turn, against the actual developments of the events until the date of the award (*i.e.*, 2003). The tribunal found out that:

Dr. Copeland critically evaluated the reasonableness of each assumption contained in CME's 1999 forecasts – probing their bases and testing them against the historical operations of CNTS, general economic expectations, publicly available information and his general business knowledge. Dr. Copeland and Monitor recognized in their analysis the conservative nature of CME's approaches to its forecasts. For example, where CME had forecasted Czech inflation rates of 8% to 7% from 1999 to 2005, as a purposefully conservative measure given by Czech Republic's announced program to reduce inflation to 4% to 5%, Monitor concluded that these projections in particular would have been too conservative by August 1999, by which time it was clear that inflation would be far lower (it ended up at 2.1% for 1999 and 3.9% for 2000). In other instances, Dr. Copeland either recognized that the projections were conservative but adopted them, as in the case of ad discounts and acquired programming expenditures, or attached further explicitly conservative modifications to the forecasts to increase his confidence that they could be viewed as entirely reliable [...].⁴³⁸

To conclude, in order to be relevant and reliable for the purposes of establishing the amount of prospective cash flow to be generated by an

⁴³⁷ Ibid, para. 440.

⁴³⁸ *CME v. The Czech Republic*, Final Award of 14 March 2003, para. 163.

investment involved in investment arbitration, the business plans and forecasts made by investors must also reflect a balanced and realistic approach towards the envisaged economic development of the investment.⁴³⁹

(iv) Economic and Political Conditions from the Host Country

When assessing the value of the future cash flows to be generated by investments at the centre of a dispute, arbitral tribunals must also consider the more general economic and political circumstances in which the investments are developing and carrying out their businesses. Such general economic and political circumstances impact the level of cash flow to be produced by investments, and therefore influence the overall value of investments subject to valuation in investment arbitration proceedings. Consequently, the accurate assessment of future cash flows must take into account the political stability and economic environment of the host country, the investment's perception by the targeted clients, the market position and share of the investment's competitors, as well as other economic factors.

In some instances, arbitral tribunals consider that the general political circumstances from the country where the investment is located constitute a factor which can considerably reduce the prospects of the respective business, and thus the stream of cash flow, due to their negative impact on the business environment of the respective state. In *CBS v. Iran*, the tribunal noted that the Iranian government's policy against certain Western cultural aspects, including music, would have seriously impaired the operations carried out by CBS even if there would have been no other interference with CBS's business in Iran. The tribunal stated that:

⁴³⁹ In this context, some tribunals used the concept of 'legitimate expectations' in order to designate the business prospects which would be feasible to be obtained by an investment. For further details on legitimate expectations, please refer to Marboe, *supra* note 9, at 231-232, as well as Separate Opinion of Arbitrator Pedro Nikken issued in *Suez, Sociedad General de Aguas de Barcelona S.A. and Inter Agua Servicios Integrales del Agua S.A. v. The Argentine Republic*, ICSID Case No. ARB/03/17.

the Claimant's valuations also underestimate the adverse effects of the Islamic Revolution on the music market, and thus on the CBS Iranian Companies' future business. In particular, in view of the policy of the new Iranian Government against music, especially Western music, which constituted a substantial part of the CBS Iranian Companies' field of operation, the expectations for these Companies were greatly diminished.⁴⁴⁰

Comparable situations were also encountered in other cases brought before the Iran-US Claims Tribunals, such as *Thomas Earl Payne v. Iran*⁴⁴¹ and *Sola Tiles Inc. v. Iran*. In *Sola Tiles Inc. v. Iran*, the claimant's business was based on the trade of luxury products, whose market would have been anyway negatively affected by the Iranian revolution. As a result, the tribunal concluded that the value to be attributed to the future benefits which would have been generated by the investment would have decreased even if the business at the centre of the dispute would not have been expropriated by Iran. The tribunal held that:

63. Simat's trade consisted largely of selling specialised luxury tiles, the market for which depended in large measure on the continued construction of luxury houses and apartments. The question presents itself – though neither party offered evidence on this point – whether Simat could have expected to continue importing large quantities of tiles without experiencing problems. [...]

64. The impact of such development on the value of goodwill element of Simat's business by the time of expropriation in 1979 must have been dramatic. Given the picture that emerges, Simat's prospects of continuing active trading after the Revolution were not, in view of the Tribunal, such as to justify treating Simat as a going concern so as to assign any value to goodwill.⁴⁴²

In the above-mentioned cases, tribunals concluded that, given the unfavourable political and economic circumstances from the host country, the prospective cash flows which would have been generated by the enterprises in the foreseeable future would have been seriously diminished (*i.e.*, in *CBS v. Iran* and *Thomas Earl Payne v. Iran*), or would even become

⁴⁴⁰ *CBS Inc. v. Iran*, 25 Iran-US Claims Tribunal (1990) 131, para. 52.

⁴⁴¹ *Thomas Earl Payne v. Iran*, 12 Iran-US Claims Tribunal (1986), para. 35.

⁴⁴² *Sola Tiles Inc. v. Iran*, 14 Iran-US Claims Tribunal (1987), paras. 63-64.

extinct (*i.e.*, in *Sola Tiles Inc. v. Iran*). The calculation of the future cash flows took into account the relevant circumstances from the host country where the enterprises in dispute were carrying out activities, and as a result the level of cash flows which would have been obtained was reduced, thus allowing the outcome of the valuation to consider the actual events impacting the economic life of the investment subject to arbitration.

In addition to the above, the process of considering the economic and political circumstances of the host country in the valuation process is also correlated with the risks referred to under section 4.1.2.3.(i) below.

4.1.2.3 Discounting Mechanisms and Discount Rates

Under the DCF method, the future income to be generated by an investment are converted to present value by employing a discounting mechanism, *i.e.*, by applying a discount rate to the estimated amounts of future cash flows to be produced by an investment. Thus, the accuracy of discount rates used in investment arbitration proceedings and accepted by arbitral tribunals are essential to the proper assessment of an investment's value under the discounted cash flow method, and, consequently, of the amount of damages payable to a foreign investor. This is noted, *inter alia*, by the arbitral tribunal in *Telsim v. Kazakhstan*, which stated that:

It is well known that DCF values are to a greater or lesser extent sensitive to the validity of the data on which they are based, such as the inflation rate, the discount rate, the assumptions underlying the predicted cash flows.⁴⁴³

The IVS 2013 define the discount rate as 'a rate of return used to convert a future monetary sum or cash flow into present value.'⁴⁴⁴ Also, the IVS 2007 explain that the discount rate 'should reflect the opportunity cost of capital, *i.e.*, the rate of return the

⁴⁴³ *Rumeli Telekom A.S. and Telsim Mobil Telekomikasyon Hizmetleri A.S. v. Republic of Kazakhstan*, ICSID Case No. ARB/05/16, Award of July 29, 2008, para. 810.

⁴⁴⁴ IVS 2013, Definitions - Standards and Technical Information Papers, available at <http://standards.ivsonline.org/course/view.php?id=3#section-3>, accessed on 8 December 2014.

capital can earn if put to other uses having similar risk.⁴⁴⁵ The discount rates are therefore closely linked to the risks that may impact a company's operations. This aspect is reflected in the World Bank Guidelines for the Treatment of Foreign Investments, which state that a 'discount rate may be measured by examining the rate of return available in the same market on alternative investments of comparable risk on the basis of their present value'.⁴⁴⁶ Also, valuation experts point out the direct relationship between the discount rate and the risks that may affect the investment:

The discount rate is the expected total rate of return the investor requires to commit funds to the particular investment. It is market-driven in that it represents the expected rates of return available in the market on other investments that are comparable in terms of risk.⁴⁴⁷

The next sections will analyse risk and its influence on the discount rate, and the instruments used to reflect risk in DCF valuations.

(i) Risk and its Influence on the Discount Rates

The concept of risk 'may be understood either as a performance variance or just as the likelihood of a negative outcome that reduces the initially expected return'.⁴⁴⁸ As noted by legal authors⁴⁴⁹, in the context of valuation of income-generating investments at the centre of arbitration proceedings, risk may also be defined as 'the degree of uncertainty as to the realization of the expected future return'.⁴⁵⁰ In the literature regarding the risks associated with investing in foreign countries, the two most frequently used terms are 'country risk' and 'political risk'. Also, the terms 'cross-border risk' and

⁴⁴⁵ IVS, Eighth Edition, 2007, International Valuation Guidance Note No. 9, Discounted Cash Flow Analysis for Market Valuation and Investment Analyses (revised 2007), p. 266.

⁴⁴⁶ The World Bank Guidelines on the Treatment of Foreign Direct Investment, art. IV (*Expropriation and Unilateral Alterations or Termination of Contracts*), para. 6.

⁴⁴⁷ Shannon Pratt, *The Lawyer's Business Valuation Handbook*, American Bar Association, 2000, p. 118.

⁴⁴⁸ Michel Henry Bouchet, Ephraim Clark, Bertrand Gros Lambert, 2003, *Country Risk Assessment: A Guide to Global Investment Strategy* (Wiley Finance, 2003), p. 9.

⁴⁴⁹ Marboe, *supra* note 9, at 245.

⁴⁵⁰ Shannon Pratt, *Valuing a Business: the Analysis and Appraisal of Closely Held Companies* (McGraw-Hill Publishing House, 2000), p. 163.

‘sovereign risk’ may be encountered.⁴⁵¹ The term of ‘country risk’ became more used in comparison with the older term of ‘political risk’ during the 1970s, due to the fact that the term ‘country risk’ has a wider meaning, which covers all types of risks related to operating in a certain country, while the term ‘political risk’ refers only to the risks of a political nature.

Political risk indicates the ‘probability of occurrence of political events that will change the prospects for profitability of a given investment’.⁴⁵² Political risk usually takes the form of governmental actions or inactions which result in the interference, confiscation or destruction, by the host state, of all or part of an investor’s rights over its investment.⁴⁵³ On the other hand, country risk does not relate only to events of a political-related nature, but refers to a broader spectrum of risks which may occur in a certain country, including socio-political risk (*e.g.*, democratic or non-democratic change in the government, amendments of the legal and regulatory framework, changes in the policy of the local authorities, social unrest affecting foreign investments etc.), economic risk (*e.g.*, macro-economic and microeconomic risks specific to the host country where the investment is located) and even natural risk (*e.g.*, floods, earthquakes, volcanic eruptions or other natural disasters).⁴⁵⁴

Arbitral tribunals point out that country risk must be taken into account when establishing the discount rate on the occasion of a DCF valuation of an investment at the centre of an arbitral dispute. For instance, the arbitral tribunal in *Siemens v. Argentina* expressly stated that the discount rate should be established so as to take into account, apart from the cost of capital

⁴⁵¹ Michel Henry Bouchet, Ephraim Clark, Bertrand Gros Lambert, 2003, *supra* note 448, at 16 and 197.

⁴⁵² D. Haendel, G.T. West, R.G. Meadow, *Overseas Investment and Political Risk* (Philadelphia: Foreign Policy research Institute Monograph Series, No. 21, 1975).

⁴⁵³ Noah Rubins, Stephan Kinsella, *supra* note 405, p. 3.

⁴⁵⁴ For details, please refer to Michel Henry Bouchet, Ephraim Clark, Bertrand Gros Lambert, *supra* note 448, at 16. It should be however noted that some definitions of the country risk are more specific – by way of example, Andrew Fight, *Cash Flow Forecasting*. (Butterworth-Heinemann, 2005), p. 216 defines ‘country risk’ as ‘an estimate of the likelihood of a country debt rescheduling which will prompt currency inconvertibility’.

required by the investment (or, as formulated by the tribunal, the ‘cost of money’), the country and business risks:

The discount rate to be applied to the estimated profits should reflect the cost of money and the country and business risks. According to Siemens’ own expert, this should be a rate within a range of 11% and 15%. Mr. Lemar himself has offered a calculation using a rate in the middle of such range – 13%. The Tribunal considers this rate appropriate taking into account the country and business circumstances of the operation and the cost of funds.⁴⁵⁵

The interconnection between the country risk and the discount rate was subsequently expounded upon by the arbitral award in *NG. v. Argentina*. The tribunal considered that the special circumstances and country risk triggered by the Argentinean crisis of 2001-2002 needed to be reflected in the discount rate to be applied in the valuation of the investment at the centre of the dispute, and decided as follows:

282. Crucial to these calculations, of course, is the development and use of an appropriate discount rate. This process is complex and is the subject of a great deal of theoretical debate in the professions of economics and finance as reflected in the experts’ reports and comments on the record in these proceedings. The situation is complicated further, in this case, by the Argentine economic crisis of 2001-2002. Clearly, neither party could have anticipated the precise features of such a crisis, but no serious effort at valuation/compensation can ignore its potential impact on the business of Transener.⁴⁵⁶

Nevertheless, not only the general factors pertaining to country risk are considered when determining the value of an investment during arbitration proceedings, but also the risks affecting each particular investment are taken into account. From this standpoint, the risks which may affect foreign investments have been categorized as systematic and unsystematic (the latter also known as subjective or specific) risk.⁴⁵⁷ Systematic risk refers to those types of risks which may equally affect all the similar enterprises or

⁴⁵⁵ *Siemens A.G. v. The Argentine Republic*, ICSID CASE No. ARB/02/8, Award of February 6, 2007, para. 382.

⁴⁵⁶ *NG. v. Argentina*, para. 282.

⁴⁵⁷ R.A. Brealey, S.C. Myers, *Principles of Corporate Finance* (McGraw-Hill, 2006), p. 165 *et seq.* For further details, please see also Marboe, *supra* note 9, at 245 *et seq.*

investments acting in a certain industry or field of activity (e.g., environmental factors, industry factors, macroeconomic aspects etc.⁴⁵⁸), independent of specific features of each enterprise or investment. Therefore, country risk may be considered a type of systematic risk, as it has the capacity to generally affect all the investments within an industry or within a specific territory. However, systematic risk and country risk are not identical: systematic risk (such as the risk affecting, by way of example, all economic operators in the banking or natural gas fields, throughout the European Union), may be trans-national, while the country risk is limited to a certain country. Unlike systematic risk, the unsystematic risks regard the risk factors which are specific to a certain investment or company (e.g., shifting buyer preferences, dependence of key suppliers, lack of liquid funds, barriers to market entry, excessive debt, unfavourable contractual obligations etc.).⁴⁵⁹

While systematic risks may be easier to recognize by arbitral tribunals, the unsystematic risks are usually more difficult to identify, as such process requires in-depth knowledge of the features of the investment subject to arbitration, the industry in which the investment operates, the commercial contracts concluded by the investment, the work force employed to operate the investment etc. The arbitral tribunal in *Himpurna California v. PLN* detected certain unsystematic (or specific) risks that could have affected the enterprise at the centre of the dispute, and stated that:

The Arbitral Tribunal considers that the claimant's purported perception of the ECS, no matter how correct in a literal sense, is too good to be true; this is indeed one of the reasons the 3% risk component of the 8.5% discount rate seems absurd. Indeed, in a different context (*i.e.*, when explaining the need for irreversible purchase commitments to serve as security for financing) the claimant itself has stated that there were significant risks: steam field risk, including futile frilling and reservoir damage; construction and operation risks including shortages or increases

⁴⁵⁸ Anthony Saunders, Linda Allen, *Credit Risk Measurement: New Approaches to Value at Risk and Other Paradigms* (John Wiley & Sons, 2002), p. 138.

⁴⁵⁹ Robert Dunn, Everett Harry, *Modelling and Discounting Future Damages*, *Journal of Accounting*, Online issues, January 2002, available at www.aicpa.org, accessed on 10 November 2014.

in the price of equipment, materials and labour, delays in delivery of equipment and material, labour disputes, adverse weather conditions, and unforeseen engineering, design, environmental, or geological problems.⁴⁶⁰

In light of the above, in order to accurately determine the value of an investment at the centre of a dispute and, thus, the compensation payable to an affected investor, arbitrators must take into account both systematic risks and the specific risks that may come into play. This principle was implemented in *LG&E v. Argentina*, where the tribunal noted that, in addition to the country risk which was transposed in the valuation of the investment subject to arbitration by way of a ‘country risk premium’, LG&E was also affected by a specific risk, namely the one deriving from the tariff regime applicable to LG&E. The tribunal considered that the country risk did not absorb the specific tariff-related risk. Thus, in order to ensure the accurate assessment of the value of the investment value and compensation of the claimants, the tribunal compounded into the final award both the country risk and the specific risk related to the tariff regime. In its award, the tribunal stated that:

The Tribunal makes a final remark with respect to the allegations on the impact of the country risk premium on compensation. Although this premium was included in the calculation of tariffs, it does not excuse Argentina for the abrogation of the tariff regime. The tariff regime was an essential feature for enticing foreign investors to invest in the gas industry and an express commitment of the Argentine Government. The tariff regime offered additional conditions than those covered by the country risk premium. [...] ⁴⁶¹

In view of the foregoing, the Tribunal has decided to adopt a method of calculation that accounts for the principles stated by the Tribunal and at the same time assures that the Claimants are “fully” compensated for the damage incurred as a result of Argentina’s wrongful acts.⁴⁶²

⁴⁶⁰ *Himpurna California Energy Ltd. v. PT (Perseo) Perusahaan Listrik Negara (PLN)*, Final Award of 4 May 1999, Yearbook of Commercial Arbitration (2000) 13, para. 365.

⁴⁶¹ *LG&E Energy Corp., LG&E Capital Corp., LG&E International, Inc. v. The Argentine Republic*, ICSID Case No. ARB/02/1, 25 July 2007, para. 52.

⁴⁶² *Ibid*, para. 53.

(ii) Instruments Used to Reflect Risk in the Discount Rate

Because several risk factors which can directly impact the future cash flows to be generated by investments (as detailed above),⁴⁶³ risk is reflected into income based valuations through the concept of ‘cost of capital’⁴⁶⁴ to be incurred by an investment. Cost of capital is regarded as the price of risks taken when making funds available to an investment, and reflects the minimum return that investors expect to earn from investing in a company.⁴⁶⁵ As explained by economists L. Kruschwitz and A. Loeffler,⁴⁶⁶ the cost of capital can be regarded as an indicator of the discount rate to be applied for future cash flows to be generated by an investment. This idea appears to be grounded on previous statements of S. Brealey and S. Myers, who speak of the cost of capital as the ‘figures with which cash flows are to be discounted’.⁴⁶⁷

The risks and costs of capital applicable to investments are transposed in the discount rate applicable under the income based approach to the cash flows to be generated by an investment through the application of two main instruments: (i) the ‘weighted average cost of capital’ (‘WACC’), and (ii) the ‘build-up’ procedures – which are detailed below.

(a) The Weighted Average Cost of Capital

The setting-up and operation of investments are financed through debt (bank loans, credit lines etc.) and/or equity. The cost of using funds for the

⁴⁶³ Tim Koller, Marc Goedhart, David Wessels, *supra* note 166, at 33.

⁴⁶⁴ Pursuant to R.A. Brealey and Stewart C. Myers (*Principles of Corporate Finance*, 7th Edition, McGraw-Hill, 2003, p. 544), the general term of ‘cost of capital’ brings together two concepts: opportunity cost of capital (*i.e.*, the expected rate of return offered in capital markets by equivalent-risk assets) and adjusted cost of capital (*i.e.*, the adjusted opportunity cost or hurdle rate that reflects the financing side effects on an investment project).

⁴⁶⁵ Tim Koller, Marc Goedhart, David Wessels, *supra* note 166, at 33.

⁴⁶⁶ Lutz Kruschwitz, Andreas Loeffler, *Discounted Cash Flow: A Theory of the Valuation of Firms*, (John Wiley & Sons), 2006, p. 22.

⁴⁶⁷ Richard Brealey, Stewart Myers, *Principles of Corporate Finance* (7th Edition, McGraw-Hill, 2003), p. 544.

purposes of financing investments can be transposed in interest rates which reflect the cost of money (or capital).⁴⁶⁸ In this context, the weighted average cost of capital refers to a method of calculating an investment's cost of capital in which each category of capital sources (debt and equity) is proportionately weighted.⁴⁶⁹ The WACC also refers to the 'average cost of each dollar of financing, no matter its source, that the firm uses to purchase assets'⁴⁷⁰ and finance its operations.⁴⁷¹

Pursuant to the financial doctrine⁴⁷², the calculation of WACC implies: (i) establishing all the sources of capital used by the enterprise (equity, debt, preferred stock etc.); (ii) assessing the total value of the capital (by computing the value of all capital sources); (iii) assigning weight to each source of capital (*i.e.*, ascertaining the proportion of each source of capital in the capital structure, usually by dividing the value of each source to the total value of capital); (iv) determining the costs of all sources of capital, by reference to the market value of the capital sources at the valuation date; and (v) adding all the weighted costs of the sources of capital in order to arrive at the WACC.⁴⁷³

A hypothetical example of how the WACC is computed is presented by David Laro (judge of the US Tax Court) and Shannon Pratt (valuation expert)⁴⁷⁴:

⁴⁶⁸ Scott Besley, Eugene Brigham, *Principles of Finance* (4th Edition, Cengage Learning, 2009), p. 136.

⁴⁶⁹ Geoff O'Brien, Nicola Pearsall, Phil O'Keefe, *The Future of Energy Use* (Routledge, 2010), p. 265.

⁴⁷⁰ Scott Besley, Eugene Brigham, *supra* note 468, at 485.

⁴⁷¹ Lutz Kruschwitz, Andreas Loeffler, *supra* note 466, at 67 *et seq.*

⁴⁷² Sheeba Kapil, *Financial Management* (Dorling Kindersley, 2011), p. 278.

⁴⁷³ *Ibid*, p. 278.

⁴⁷⁴ David Laro, Shannon Pratt, *Business valuation and taxes: procedure, law, and perspective* (John Wiley & Sons, 2005), p. 194.

Assume:

	Cost	Weight
Common equity	20%	70%
Long-term debt	10%	30%
Tax rate	40%	

Then:

Component	Cost	Weight	Weighted Cost
Equity	0.20	$\times 0.70 =$	14.0%
Long-term debt	$0.10 \times (1 - 0.40) = 0.06$	$\times 0.30 =$	1.8%
Weighted average cost of capital			15.8%

475

The WACC rate established as per the above algorithm may also be used as a discount rate under the income based approach used in investment arbitration proceedings.

The practice of investment tribunals recognises the implementation of the DCF method whereby the discount rate is established by reference to the weighted average cost of capital borne by the investment. The use of discount rate equal to the WACC was endorsed as a matter of principle by the arbitral tribunal in *CMS v. Argentina*, which stated that:

There are two recognised ways of computing the value of a firm and its securities on a DCF basis. One can start computations with the cash flows to the firm before interest and debt repayments, discount such flows at the weighted average cost of capital (the “WACC”) and add the discounted cash flows to the firm to establish its value; then, the value of debt is subtracted and the residual value is the value of equity. [...] The Tribunal has been advised that, by and large, analysts have tended to favour the first method.⁴⁷⁶

⁴⁷⁵

Ibid.

⁴⁷⁶

CMS Energy Corporation v. Argentina, Award of 12 May 2005, para. 430. While accepting in principle the applicability of the WACC procedure, the tribunal decided to apply another method for the purpose of establishing the value of the investment under the DCF, relying on the discounts made on the basis of the costs of equity (para. 430 and para. 433).

Also, in *CME v. the Czech Republic*, the tribunal applied a discount rate reflecting WACC applicable to the claimant's investment in order to assess the overall value of the enterprise at the centre of the dispute:

160. Three factors establish a DCF valuation: (i) the company's projected future operating cash flows (that is, cash receipts minus cash payments, such as debt service), estimated for each year over a finite forecast period; (ii) the "continuing value" of the company based on expected cash flows growing at a constant rate after the forecast period; and (iii) a discount rate, applied to each of the projected future cash flows, which determines the present value of those future cash flows. The discount rate is based on a company's weighted average cost of capital. [...]

164. To these revenue and expense numbers, and to the resulting conclusions about continuing value of CNTS after the forecast period, Dr. Copeland applied a discount rate based on weighted average cost of capital in accordance with conventional valuation practice. This calculation is necessary to determine the current value of a stream of cash flows extending into the future. [...]⁴⁷⁷

In spite of the above examples which clearly endorse the WACC as a primary indicator of the discount rates to be applied under the DCF method,⁴⁷⁸ investment arbitration tribunals appears not to focus on WACC analysis, as in most cases tribunals tend to simply apply the discount rates proposed by the experts appointed by the parties or by the tribunal, without analysing in detail the calculations on which the discount rates are based upon.

(b) The 'Build-up' Procedure

The 'build-up' procedure⁴⁷⁹ or the 'build-up method'⁴⁸⁰ for establishing a discount rate for the DCF valuation derives its name 'from the process of building up the individual layers of risk associated with investing'⁴⁸¹ in the

⁴⁷⁷ *CME v. The Czech Republic*, Final Award, 14 March 2003, paras. 160 and 164.

⁴⁷⁸ Another ICSID case where the WACC was applied is *Sempra Energy International v. Argentine Republic*, ICSID Case No. ARB/02/16, Award of 28 September 2007 (see for instance paras. 430, 431 and 458).

⁴⁷⁹ Marboe, *supra* note 9, at 246.

⁴⁸⁰ Jeffrey Fisher, Robert Martin, *Income Property Appraisal* (Dearborn Financial Publishing, 1991), p. 180.

⁴⁸¹ Donald Glenn, Thomas Burrage, Donald DeGrazia, William Stewart Jr., *Family Law Services Handbook: The Role of the Financial Expert* (John Wiley & Sons, 2011), p. 167.

business subject to valuation. The build-up method ‘attempts to build up a discount rate by first identifying the return on a risk-free investment, then adding a premium’⁴⁸² for each risk associated with the investment subject to valuation.

The risk-free rate may be, for instance, the 20-year U.S.A. Treasury bond rate⁴⁸³ (which would represent the investor’s alternative involving no risk for its capital⁴⁸⁴). To the risk-free rate premiums are added, so as to reflect the risks identified in relation to the investment, pursuant to the following formula:

$$\text{Discount rate} = \text{Risk-free rate} + \text{Equity risk premium} + \text{Size Premium} + \text{Industry risk premium} + \text{Company-specific risk premium}.$$
⁴⁸⁵

The ‘*equity risk premium*’ reflects the risk of investing in large, publicly traded enterprises (being generally recognised that equity investments expose the investors to additional risk when compared to risk-free instruments).⁴⁸⁶ The discount rates applied to equity investments must therefore include an additional component, expressed in percentages, which transposes such additional risk in the valuation exercise.⁴⁸⁷ The values of equity risk premiums applicable in different countries are usually provided by specialised companies (for instance, for US markets, the information on equity risk premiums provided by Ibbotson Associates⁴⁸⁸ are used⁴⁸⁹).

The ‘*size premium*’ reflects the risk associated with investing in smaller companies (when compared to investing in larger, well established

⁴⁸² Jeffrey Fisher, Robert Martin, *supra* note 480, at 180.

⁴⁸³ Mark Tibergien, Owen Dahl, *How to Value, Buy, Or Sell a Financial Advisory Practice: A Manual on Mergers, Acquisitions, and transition Planning* (Bloomberg, 2006), p. 34.

⁴⁸⁴ Donald Glenn, Thomas Burrage, Donald DeGrazia, William Stewart Jr., *supra* note 481, at 167.

⁴⁸⁵ *Ibid.*

⁴⁸⁶ Mark Tibergien, Owen Dahl, *supra* note 483, at 36.

⁴⁸⁷ Kantor, *supra* note 11, at 148.

⁴⁸⁸ For details, please see www.ibbotson.com.

⁴⁸⁹ Kantor, *supra* note 11, at 148.

companies).⁴⁹⁰ Extensive studies demonstrate that smaller companies tend to be subject to higher risks than larger companies, and, thus, to bear a higher cost of capital.⁴⁹¹ While size premium must also be calculated by reference to the economic conditions of the market where the enterprise subject to valuation is incorporated and operates, the precise values of size premiums applicable to companies set-up in certain countries may not be easily identifiable because of insufficient information or precedents. In such cases, one possibility that the courts have accepted would be to adjust the size premiums adopted for the valuation of companies in established and mature markets (such as the US or UK) to the specific circumstances of each case. This matter was referred to in the practice of US courts, where it was stated that:

The general weight of the scholarship, in summary, seems to be that the small-size premium might well apply in the same way as in the U.S. in more highly developed foreign markets, and would not apply to the same extent, or at all, in newly developing markets.⁴⁹²

The '*industry risk premium*' represents the increment or decrement to be included in a DCF rate for the purposes of reflecting the risk of investing in an enterprise which operates in a particular industry, and is based on the observation that certain industries can be more or less risky than the market as a whole.⁴⁹³ This component of the discount rate is not always self-standing, as it may also be included in the company-specific risk premium.

The '*company specific risk premium*' refers to the unique or unsystematic risks which may affect the value of specific businesses subject to valuation, in relation to the profile(s) of the client base, cost and method used to procure

⁴⁹⁰ Mark Tibergien, Owen Dahl, *supra* note 483, at 36.

⁴⁹¹ Shannon Pratt, *supra* note 447, at 121.

⁴⁹² *Gesoff v. IIC Industries, Inc.*, 902 A.2d 1130, 2006 Del. Ch. Lexis 91 (Del. Ch. 2006).

⁴⁹³ Donald Glenn, Thomas Burrage, Donald DeGrazia, William Stewart Jr., *supra* note 481, at 168.

clients, opportunities for additional income, dependence on key personnel etc.⁴⁹⁴

The discount rates to be applied in the context of DCF valuations of investments at the centre of arbitral disputes may be obtained by aggregating, through the build-up procedure, the risk-free rate and all or part of the premiums referred to above (depending which of such premiums may be applicable), to which the inflation rate may also be added.⁴⁹⁵ In the practice of arbitral tribunals, this procedure was applied, among others,⁴⁹⁶ in *CMS Energy Corporation v. Argentina*. In this case, it was even clearer how the different risk premiums were aggregated by the valuation expert involved for the purposes of determining the discount rate applicable to the investment subject to arbitration:

453. Under the second scenario, the tribunal estimates that the proposed discount rate of 13.45% should be increased to 14.5%.

454. To arrive at the first figure, Mr. Wood-Collins used a “risk-free” rate of 5.94%, a country-risk premium of 5.21% based on the country-risk premium of TGN’s debt over the US Treasury rate and a 2.296% equity risk premium (market equity risk premium of 5.6% multiplied by TGN’s beta factor of 0.41). It appears that Mr. Wood-Collins has in fact equated the country risk premium on equity and the country risk premium on TGN’s debt. While it is true that the risk borne by shareholders is also borne by debt-holders, it is still well recognized that shareholders bear a significantly larger risk, because their claims are residual. Mr. Wood-Collins argues that ENER GAS in its 1997 tariff review had settled on a cost of equity very close to the one computed by him. It is quite understandable that, in setting the equity country risk, a State regulatory agency would adopt a conservative approach; first of all, such an agency would wish to protect a positive image of that country as a foreign investment venue and, secondly, the higher the cost of equity it would set, the higher the tariff would be. [...]

⁴⁹⁴ Mark Tibergien, Owen Dahl, *supra* note 483, at 36-37.

⁴⁹⁵ Irmgard Marboe, *supra* note 9, p. 260, points out that it is more appropriate not to include the inflation rate as a separate discount factor, but to include it in the build-up or WACC procedures instead.

⁴⁹⁶ Another case involving the build-up procedure is *Ioannis Kardassopoulos and Ron Fuchs v. The Republic of Georgia*, ICSID Case No. ARB/05/18 and ARB/07/15, Award of March 3, 2010 (see for instance paras. 624-628 and 631).

455. The Tribunal is of the view that, taking into account the historical evidence on the economic and political performance of Argentina and the above facts, the cost of the equity investment made by the Claimant should be increased from 13.45% to 14.5%.⁴⁹⁷

As demonstrated by the case referred to above, build-up procedures have been successfully applied in DCF valuations implemented in investment arbitration. At the same time, the above demonstrates that there is a direct proportionality between discount rates applied in such DCF valuations and risk factors identified by tribunals – *i.e.*, the higher the risk and the more risk factors affecting an investment, the higher the discount rate applied to the respective investment for valuation purposes.

(iii) Examples of Discount Rates Applied by Arbitral Tribunals

In most cases, private investors acting as claimants in investment arbitration proceedings aim to demonstrate that the discount rates to be adopted by tribunals for the purposes of establishing the value of their investments under DCF valuations should be as low as possible (and, consequently, that the future cash flows to be generated by the investments should be reduced as little as possible in order to obtain the highest possible value of their investments, and, consequently, of damages). On the other hand, the host states acting as respondents try to argue that the discount rates should be as high as possible, so as to lead to minimum values for the investments subject to valuation. This was the case, among others,⁴⁹⁸ in *Enron v. Argentina*, where the parties' experts adopted different values of premiums used for the calculation of the investment's WACC, and thus dissimilar discount rates. The ICSID tribunal decided the following:

411. The experts also disagreed about the appropriate WACC that should be applied in this case. While LECG has used a WACC of 12.24% for December 31, 2001, GSCSA has discussed a WACC of 14.86%. The Tribunal's expert considers it is appropriate to use a higher premium for

⁴⁹⁷ *CMS Energy Corporation v. Argentina*, Award of 12 May 2005, paras. 453-455.

⁴⁹⁸ Another relevant case is *Alpha Projektholding GmbH v. Ukraine*, ICSID Case No. ARB/07/16, Award of November 8, 2010, para. 483.

risk than those used by LECG and proposes a 12.6% WACC, based on the WACC considered by ENARGAS for RQT II (10.4%) plus an adjustment for inflation.

412. The Tribunal finds that the ENARGAS figure constitutes an objective and realistic calculation since it would have been the actual cost of capital applied by the regulator in the calculation of tariffs if the RQT II had not been aborted. While [...] ENARGAS did not reach a final determination on this matter, the figures discussed at the time reflected the options available and its most likely outcome. The adjustment for inflation is necessary to make it consistent with the nominal values used by LECG.

413. In light of these considerations the Tribunal considers that the figure proposed by the Tribunal's expert is reasonable and should also be retained for the calculation of compensation.⁴⁹⁹

Given the claimants' tendency to argue the application of very low discount rates, doubled by the respondents' tendency to advocate very high discount rates (as referred to above), in the practice of arbitral tribunals the values of discount rates actually applied have registered significant variations. Discount rates varied from rates of only a few percentages, to discount rates exceeding a quarter of the value of the prospective cash flows to be generated by the investments at the centre of the dispute.

One of the smallest discount rates adopted by arbitral tribunals was applied in *Phillips Petroleum Co Iran v. Iran*, where the tribunal endorsed a discount rate of 4.5% proposed by the claimant's expert:

[...] Professor Myers derived, as a starting point, a benchmark rate of 6 percent. Next, he found that the relative asset risk of a sample of large oil companies that he examined was lower, and he calculated the real weighted average cost of capital for these companies at 4.5 percent. Based on his belief that Phillip's rights to production from the Rostam and Rakhsh fields were relatively low-risk assets, no riskier than oil company assets in general, he concluded that 4.5 percent was also the appropriate discount rate to be applied in this Case.⁵⁰⁰

On the other hand, one of the largest discount rates applied by arbitral tribunals was the one from *Starret Housing Corp. v. Iran*, where a discount

⁴⁹⁹ *Enron Corporation, Ponderosa Assets v. The Argentine Republic*, ICSID Case No. ARB/01/3, 22 May 2007, paras. 411-413.

⁵⁰⁰ *Phillips Petroleum Co Iran v. Iran*, 21 Iran-US Claims Tribunal (1989) 79, para. 136.

rate of 28% was accepted. In this case, the tribunal has not extensively scrutinized how the valuation expert reached such discount rate, but instead preferred to simply rely on the expert's calculations:

The tribunal finds that this is a matter involving complex aspects of valuation. [...] [T]he Tribunal adopts the 28 percent discount rate proposed by the Expert, since this is within his area of expertise and sufficient reasons have not been shown that his opinion is contrary to the evidence in the record or to generally recognized valuation practices.⁵⁰¹

Also, there have been cases when the parties and their experts have agreed upon the discount rate to be applied. For instance, in *CME v. the Czech Republic*, the parties agreed that the DCF method was the appropriate instrument for establishing the compensation payable to the foreign investor, and that the discount rate applicable for the DCF valuation was of 10.83%. The ICSID tribunal held that:

The Respondent submitted a discounted cash flow valuation of CNTS prepared by Rothschild (CNTS valuation report July 1, 2002), which arrived at the estimate that the net present value of CNTS cash flows at August 5, 1999 is USD 320 million to USD 350 million, based on a central DCF value of USD 335 million. Both parties agreed that the DCF method is the appropriate methodology [...]. According to Rothschild, DCF is the only reliable methodology in this case. The experts agreed on the same discount rate of 10.83%. Monitor based its analysis on the forecasts prepared by CNTS to 2005 and prepared its own forecast from 2006 to 2008.⁵⁰²

Although selecting the accurate discount rate is crucial to establishing an investment's value under the DCF method, sometimes the process of choosing or accepting an appropriate discount rate is left mainly to the tribunals' discretion.⁵⁰³ As M. Kantor points out, arbitral tribunals and courts 'have not developed a single approach to determining the appropriate

⁵⁰¹ *Starret Housing Corporation v. Iran*, 6 Iran-US Claims Tribunal (1987) 112, para. 336.

⁵⁰² *CME v. the Czech Republic*, Final Award of 14 March 2003, para. 564.

⁵⁰³ The potential misuse of the discretionary powers by arbitral tribunals is only one of the aspects that may negatively affect the outcome of investment arbitrations. For an analysis of other potential errors that can be made by arbitral tribunals (such as misuse of precedent and lack of internal consistency), please refer to Federico Ortino, *Legal Reasoning of International Investment Tribunals: A Typology of Egregious Failures* (Journal of International Dispute Settlement. 3, 1), p. 25-46.

discount rate'.⁵⁰⁴ Consequently, it appears that it is not very uncommon for arbitrators to rely mainly on their practical previous experience and common sense when selecting discount rates, instead of applying economic calculations.⁵⁰⁵

4.1.2.4 The Investments' 'Terminal Value' or 'Continuing Value'

The 'terminal value' of an investment subject to DCF valuation is the expected value of the respective investment at the end of the terminal year of the valuation (*i.e.*, at the end of the projection period used to estimate future cash flows).⁵⁰⁶ Two main ideas support the implementation of the concept of 'terminal value' in income based valuations pursuant to the DCF method. Firstly, it would be impossible for a DCF valuation to foresee and calculate future incomes which may be obtained by the investment subject to valuation during an unlimited period of time in the future. Thus, the DCF valuation period must be limited to a particular duration (called the 'projection period', which is usually of five (5) to ten (10) years) in relation to which there is sufficient information that would render possible an accurate calculation of future cash flows (*i.e.*, until the end of the terminal year). However, even at the end of the projection period, the investment would normally still exist, hold assets and carry on activities – and would thus continue to generate cash flow and to have a certain value. In order to assess the value of all future cash flows to be produced by an investment (and, consequently, the investment's overall value) beyond the terminal year⁵⁰⁷ of the projection period, the concept of 'terminal value' was introduced.⁵⁰⁸ Secondly, it was observed that many investments

⁵⁰⁴ Kantor, *supra* note 11, at 142.

⁵⁰⁵ This aspect was noted, *inter alia*, in the practice of US courts dealing with the selection and application of discount rates for the purposes of establishing the value of a business in dispute: 'The experts also haggle over the correct discount rate. Testimonial feuds about discount rates often have the quality of a debate about the relative merits of competing alchemists. Once the experts' techniques for coming up with their discount rates are closely analysed, the court finds itself in an intellectual position more religious than empirical in nature, insofar as the court's decision to prefer one position over the other is more a matter of faith than reason' (*Delaware Open MRI Radiology Associates, Inc. v. Kessler*, 898 A.2d 290, Del. Ch. 2006, at 338).

⁵⁰⁶ Shannon Pratt, Alina Niculita, *supra* note 21, at 252.

⁵⁰⁷ M. P. Narayanan, Vikram Nanda, *Finance for strategic decision making: what non-financial managers need to know* (John Wiley & Sons, 2004), p. 154.

⁵⁰⁸ For further details, please refer to Tom Gats, *supra* note 375, at 45 *et seq.*

experience periods of rapid growth (usually shortly after their setting-up), followed by periods of slower, more stable growth which occurs once the market becomes saturated (this was the case of companies acting, for instance, in the communications or IT industries).⁵⁰⁹ From this standpoint, cash flows to be generated by the investment during the periods of rapid growth (and, hence, the investment's value during this period) must be calculated differently from the investment's value from the slower period of growth. The investment's total value during the slower period of growth is determined by reference to the terminal value (which is also known as the horizon or continuing growth value).⁵¹⁰

The terminal value '*may be viewed as the hypothetical sale price of the business in the future based on a perpetual level of cash flow*',⁵¹¹ calculated immediately following the terminal year⁵¹² used for valuation purposes.⁵¹³ Because such moment in time is subsequent to the valuation date, the terminal value must also be discounted back to the present value in order for the equivalent of the terminal value as of the valuation date to be calculated.⁵¹⁴

The concept of terminal value has been addressed in some instances in the practice of investment arbitral tribunals. In *CME v. The Czech Republic*, the tribunal explained the application of the DCF methodology by reference to two separate phases: (i) a ten-year forecast period, in relation to which the projected cash flows were calculated; and (ii) the period following the forecast period, in relation to which the terminal value was assessed. The tribunal stated that:

⁵⁰⁹ Donald DePamphilis, *Mergers, acquisitions, and other restructuring activities* (Academic Press, 2008), p. 283.

⁵¹⁰ Ibid.

⁵¹¹ D. R. Carmichael, Lynford Graham (Editors), *Accountants' Handbook* (11th Edition, John Wiley & Sons, 2010), p. 382.

⁵¹² Shannon Pratt, Alina Niculita, *supra* note 21, at 254.

⁵¹³ The assumption that the investment is able to generate perpetual cash flows is also known as the 'perpetual growth approach', as detailed in John Graham, Scott Smart, William Megginson, *Corporate Finance: Linking Theory to What Companies Do* (3rd Edition), Cengage Learning 2010, p. 292.

⁵¹⁴ Shannon Pratt, Alina Niculita, *supra* note 21, at 254.

Both experts applied the same methodology in dividing the valuation procedure in two parts: (i) in the first part of the “Forecast Period”, for which explicit forecast are prepared for each period year by year, which was taken for a ten years’ period from 1999 to 2008 and (ii) for the period thereafter in perpetuity for which period an estimation of the value of the business at the end of the Forecast Period was made (the “terminal value” or “continuing value”) which takes account of the future prospects at the time. For the Forecast Period Monitor relied on the cash flow projections of the CNTS management available until 2005. Thereafter, Monitor made its own extrapolation for the next three years until 2008, assuming a stable CNTS TV ad market share of 60% and a stable net CNTS ad revenue gross rate of 8.7% (which followed the market growth rate of the gross Czech TV ad market).⁵¹⁵

Although the same valuation method was used by the valuation experts appointed by all parties (*i.e.*, the DCF method), the results of the valuation exercise with respect to the terminal value attributable to the investment at the centre of the dispute varied significantly: while the claimant’s expert, Monitor Group (through Dr. Thomas Copeland) calculated the terminal value at USD 313 million (while the total enterprise value was estimated at USD 545 million), the respondent’s valuation experts – NM Rothschild – reached a terminal value of USD 168 million (while the total enterprise value was estimated at USD 335 million).⁵¹⁶ Thus, the terminal value was a major component of the enterprise value (*i.e.*, the terminal value represented 50% of the enterprise value in case of the Rothschild valuation, and 57% in case of the Monitor valuation).

The above example underlines the importance of the terminal value in the total investment value assessed under the DCF method, as terminal value bears a considerable weight within the total value of the investment subject to valuation.⁵¹⁷ The proportion of the terminal value in the total value established pursuant to the DCF method depends on the duration of the forecast period used to determine the cash flows to be generated by the investment during the projection period ending with the terminal year: the higher the number of years used to forecast the future cash flows to be generated by the investment during the projection period, the higher the amount of such estimated cash flows, and

⁵¹⁵ *CME v. The Czech Republic*, para. 572.

⁵¹⁶ *Ibid*, para. 575.

⁵¹⁷ M. P. Narayanan, Vikram Nanda, *Finance for strategic decision making: what non-financial managers need to know* (John Wiley & Sons, 2004), p. 154.

therefore the larger the percentage pertaining to future cash flows in the overall value of the investment subject to DCF valuation, to the detriment of the terminal value. Conversely, if the cash flows are calculated by reference to a shorter forecast period (e.g., five years instead of ten), the terminal value can gain a more important proportion of the total value of the investment subject to valuation.

4.1.3 Field of Application of the DCF Method: Going Concern Investments and Other Specific Cases

The DCF method is applied, in investment arbitration, primarily for the assessment of the value of investments qualifying as going concerns, and in subsidiary to other specific cases (*i.e.*, to investments in financial difficulties), as detailed below.

4.1.3.1 Application of the DCF Method in case of Going Concern Investments

4.1.3.1.1. Framework

Pursuant to the World Bank Guidelines, the DCF method may be applied in investment arbitration if the investment subject to valuation is a going concern. The World Bank Guidelines expressly state that ‘without implying the exclusive validity of a single standard for the fairness by which compensation is to be determined and as an illustration of the reasonable determination by a State of the market value of the investment [...], such determination will be deemed reasonable if conducted as follows: (i) for a going concern with a proven record of profitability, on the basis of the discounted cash flow value [...].’⁵¹⁸

The UNCC documents also point out that the DCF method may be used in order to assess the value of going concerns. A Decision taken by UNCC’s Governing Council in 1992 indicates that ‘for the valuation of income-producing properties there are several alternative concepts. One is to measure by reference to costs, which leads to the determination of book value. Another is to determine the value of the property as a going concern. This is often done by reference to the market value of similar properties.

⁵¹⁸ The World Bank Guidelines on the Treatment of Foreign Direct Investment, art. IV para. 6.

Where such market value cannot be ascertained, the economic or current value of that asset can be ascertained by the discounted cash flow (DCF) method or by the price/earnings (P/E) method.⁵¹⁹

The application of the DCF method for the valuation of going concerns is also endorsed by IVS, which state, on one hand, that the DCF method may be used for the valuation of ‘operating properties’,⁵²⁰ while, on the other hand, they define the ‘going concern’ as ‘a business enterprise that is expected to continue operations for the foreseeable future’.⁵²¹ On the basis of the above, the investment arbitration doctrine admits that the IVS also support the application of the DCF method to going concerns.⁵²²

In order to examine the types of investments and scenarios in relation to which the DCF method may be applied, the sub-sections below analyse the concept of ‘going concern’ and its main features.

4.1.3.1.2. The Concept of ‘Going Concern’

Under the World Bank Guidelines, the concept of ‘going concern’ refers to ‘an enterprise consisting of income-producing assets which has been in operation for a sufficient period of time to generate the data required for the calculation of future income and which could have been expected with reasonable certainty, if the taking had not occurred, to continue producing legitimate income over the course of its economic life in the general circumstances following the taking by the State.’⁵²³

The definition provided by the World Bank Guidelines includes the criteria which must be fulfilled by an enterprise or investment in order to be qualified as a going concern, namely (i) the enterprise must have a track record (materialised in a life history covering

⁵¹⁹ Decision taken by the Governing Council of the United Nations Compensation Commission during the resumed Fourth Session, at the 23rd meeting held on 6th March 1992 in Geneva, para. 18, available at http://www.uncc.ch/decision/dec_09.pdf, accessed on 10 September 2012.

⁵²⁰ IVS, Eighth Edition, 2007, Glossary of terms for International Valuation Standards, p. 353.

⁵²¹ IVS 2013, Technical Information Paper 3 - The Valuation of Intangible Assets, section 2, available at <http://standards.ivsonline.org/mod/page/view.php?id=125>, accessed on 2 December 2014.

⁵²² Marboe, *supra* note 9, at 216.

⁵²³ The World Bank Guidelines on the Treatment of Foreign Direct Investment, art. IV para. 6.

a sufficient period of time); and (ii) the investment must be expected, with satisfactory confidence, to continue to produce legitimate income in the future. The above definition does not include an express reference to the enterprise's access to financial sources. However, this criterion is self-implied, as the setting-up of an (ongoing) enterprise implies from the outset the involvement of certain capital and operational expenditures, and the involvement of internal or external sources of funding.

As opposed to the World Bank Guidelines, the documents regulating the organization and functioning of the United Nations Compensation Commission do not include a definition of a 'going concern'. However, the concept of 'going concern' was briefly referred to within a decision of the Governing Council of the United Nations Compensation Commission, which, in a concise manner, stated that: 'the business affected was a going concern, i.e. it had the capacity to continue to operate and generate income in the future'.⁵²⁴

In addition to the World Bank Guidelines and the decision of the Governing Council of the United Nations Compensation Commission, which have primarily a legal character, other sources of an economic nature explain the concept of 'going concern'. Among such sources, the International Standards on Auditing issued by the International Auditing and Assurance Standards Board (IAASB) state that, 'under the going concern assumption, an entity is viewed as continuing in business for the foreseeable future. [...] When the use of the going concern assumption is appropriate, assets and liabilities are recorded on the basis that the entity will be able to realize its assets and discharge its liabilities in the normal course of business.'⁵²⁵

The IAASB refers to justified prospects of the business continuing its existence for the future, and also states that '[...] when there is a history of profitable operations and a

⁵²⁴ Decision taken by the Governing Council of the United Nations Compensation Commission during the resumed Fourth Session, at the 23rd meeting held on 6th March 1992 in Geneva, para. 16, available at http://www.uncc.ch/decision/dec_09.pdf, accessed on 10 September 2012.

⁵²⁵ International Standard On Auditing 570- 'Going Concern', effective for audits of financial statements for periods beginning on or after December 15, 2009, available online at <http://web.ifac.org/download/a031-2010-iaasb-handbook-isa-570.pdf>, accessed on 12 September 2012.

ready access to financial resources, management may make its assessment [*regarding the qualification as a going concern*] without detailed analysis.⁵²⁶ In other words, should a business have (i) a history of profitable operations; and (ii) an access to financial resources, this would entail the presumption that the respective business is a going concern (although such presumption can be over-turned).

Unlike the World Bank Guidelines, the IAASB documents do not stress the importance of past operations for the qualification of an entity as a going concern. Beside the IAASB documents, this view is also reflected in the Auditing Standards accepted by various auditing and accounting bodies in several countries, among which the U.S.,⁵²⁷ where ‘continuation of an entity as a going concern is assumed in financial reporting in the absence of significant information to the contrary. Ordinarily, information that significantly contradicts the going concern assumption relate to the entity's inability to continue to meet its obligations as they become due without substantial disposition of assets outside the ordinary course of business, restructuring of debt, externally forced revisions of its operations, or similar actions’.⁵²⁸

As indicated by the above, it appears that there is a dissimilarity between the approach taken by legal instruments regulating the treatment of foreign investment by host states and the valuation of investments at the centre of international disputes – such as the World Bank Guidelines (on one hand), and the accounting and auditing standards which do not regard the particular case of investments (on the other hand), with respect to the importance of the track record of previous operations required for the qualification of an enterprise as a ‘going concern’. Such difference may be explained by the fact that the legal instruments are specifically tailored to be applied to the narrower field of foreign investments and international disputes, and therefore to consider the specific features of

⁵²⁶ Ibid.

⁵²⁷ In U.S., the relevant body is the Public Company Accounting Oversight Board – the corporate body established by the US Congress to oversee the audits of public companies in order to protect the public interest and the investors. For details, please refer to <http://pcaobus.org/About/Pages/default.aspx>, accessed on 16 September 2012.

⁵²⁸ AU section 341, The Auditor's Consideration of an Entity's Ability to Continue as a Going Concern, Effective for audits of financial statements for periods beginning on or after January 1, 1989, unless otherwise indicated, at <http://pcaobus.org/Standards/Auditing/Pages/AU341.aspx>, accessed on 21 September 2012.

foreign investments, while the general accounting and auditing standards are meant to be applicable to a broader range of businesses, and not only to ‘investments’ within the meaning attributed to this notion in international law.

Nonetheless, the concept of ‘going concern’ adopted by the World Bank Guidelines reflects partly the features recognised by the international law doctrine and the practice of investment tribunals to the concept of ‘foreign investment’. One example that concisely illustrates the characteristics of foreign investments is the Award on Jurisdiction given in *Fedax v. Venezuela*, which reads as follows:

The basic features of an investment have been described as involving a certain duration, a certain regularity of profit and return, assumption of risk, a substantial commitment and a significance for the host’s State’s development. [...].⁵²⁹

At least two of the above-mentioned criteria recognised by international law for the qualification of an enterprise as an investment (*i.e.*, the duration involving a sufficient period of time, and the regularity of profit and return) imply the fact that an enterprise must have already proven a life duration expanding over a sufficient period of time in order to qualify as an investment.⁵³⁰ In light of the above, it may be affirmed that this factor was particularly considered by the World Bank Guidelines when affirming that an enterprise qualifies as a ‘going concern’ as long as it ‘has been in operation for a sufficient period of time’. Thus, the perspective offered by the World Bank Guidelines with respect to the time requirement to be assessed in relation to the qualification of a business as a ‘going concern’ mirrors the approach taken by the doctrine of international investment law with regard to the time requirement which must be met by an enterprise in order to be qualified as an investment. One possible explanation is that, in international investment law, a going concern would be subject to arbitration and to

⁵²⁹ *Fedax N.V. v. The Republic of Venezuela*, Decision on Objections to Jurisdiction, 11 July 1997, ICSID Case No. ARB/96/3, para. 43, quoting Christoph Schreuer, ‘*Commentary on the ICSID Convention*’, ICSID Review – Foreign Investment Law Journal, Vol. 11, 1996, at 372.

⁵³⁰ For a detailed analysis of the concept of ‘investment’ and the features thereof, please refer to Georgios Petrochilos, Silvia Noury, Daniel Kalderimis, *Commentary on the Convention on the Settlement of Investment Disputes between States and Nationals of Other States (Washington/ICSID Convention)*, p. 69 *et seq.*, Book chapter in Loukas Mistelis (Editor), *Concise International Arbitration* (Kluwer Law International, 2003).

valuation only as long as it also qualifies as an investment. Should a business be a going concern, but fail to qualify as an investment (e.g., because it does not have the necessary scale to demonstrate a contribution to the host state's development), its value would probably not be relevant or subject to arbitration within investment arbitration proceedings, but more likely in national courts or regular commercial arbitration.⁵³¹ In other words, in international investment arbitration, (i) an enterprise must qualify as an investment; and (ii) the respective investment must qualify as a going concern, in order for the respective enterprise to be subject to DCF valuation within investment arbitration proceedings.

In addition to the life duration requirement, another point in relation to the valuation of going concerns is that the 'going concern' condition is generally regarded as the opposite of the liquidation condition. The International Standards on Auditing also stress the distinction between the going concern state and the liquidation condition: 'when the use of the going concern assumption is not appropriate in the circumstances, the financial statements are prepared on an alternative basis (for example, liquidation basis)'.⁵³² Further, under IVS, 'the entity is normally viewed as a going concern, that is, as continuing in operation for the foreseeable future. It is assumed that the entity has neither the intention nor the necessity of liquidation or of curtailing materially the scale of its operations.'⁵³³

Consequently, the concept of 'going concern' is viewed in opposition with the 'liquidation condition', and it refers to an income-producing investment (i) which is already functioning and has a track record of profitable operations; and (ii) in relation to which there is sufficient evidence that it will continue operating in the future. This view

⁵³¹ For an overview of several types of arbitrations under the major international treaties and instruments, please refer to Julian Lew, Loukas Mistelis, Stefan Kröll, *Comparative International Commercial Arbitration* (Kluwer Law International, 2003).

⁵³² International Standard On Auditing 570- 'Going Concern', effective for audits of financial statements for periods beginning on or after December 15, 2009, para. A26, available online at <http://web.ifac.org/download/a031-2010-iaasb-handbook-isa-570.pdf>, accessed on 1 November 2012.

⁵³³ IVS, Eighth Edition, 2007, Glossary of terms for International Valuation Standards, p. 364.

is applied in the practice of international investment arbitration tribunals, as detailed below.

4.1.3.1.3. Track Record of Operations

(i) General Application: Cases Involving a Sufficient Track Record Prior to the Valuation Date

In view of the World Bank Guidelines and the International Standards on Auditing, an investment must demonstrate an ability to earn revenues in order to qualify as a going concern. Such ability to generate revenues is proven, at its turn, by the existence and profitability of the investment over a sufficient period of time, aspect which renders probable the continuation of the investment's earning capacity for the future. Nevertheless, the IVS, the World Bank Guidelines or other international instruments do not precisely indicate what should be considered a 'sufficient period of time' as a measurement of an investment's track record.

In investment arbitration, several tribunals have not explicitly stated what duration an investment should have in order to qualify as a going concern. For instance, in *SPP v. Egypt*, the tribunal did not explain what would have been a sufficient duration that would have qualified the investment as a going concern, and would have thus made it subject to valuation pursuant to the DCF method. Instead, the tribunal just pointed out that:

In the Tribunal's view, the DCF method is not appropriate for determining the fair compensation in this case because the project was not in existence for a sufficient period of time to generate the data necessary for a meaningful DCF calculation. [...] The project was in infancy and there is very little history on which to base projected revenues.

In these circumstances, the application of the DCF method would, in the Tribunal's view, result in awarding "possible but contingent and

indeterminate damage which, in accordance with the jurisprudence of arbitral tribunals, cannot be taken into account”.⁵³⁴

However, it is clear that an investment which never operated cannot be considered a ‘going concern’. This was expressly stated by the award issued in *Metalclad v. United Mexican States*:

However, where the enterprise has not operated for a sufficiently long time to establish a performance record or where it has failed to make a profit, future profits cannot be used to determine going concern [...] value. [...]

The Tribunal agrees with Mexico that a discounted cash flow analysis is inappropriate in the present case because the landfill was never operative and any award based on future profits would be wholly speculative.⁵³⁵

The recent practice of arbitral tribunals appears to indicate that a track record required for the qualification of an investment as a going concern would extend over a period of several years. In this respect, in *Wena Hotel Limited v. Arab Republic of Egypt* it was noted that:

[...] here, there is insufficiently “solid base on which to find any profit... or for predicting growth or expansion of the investment made” by Wena. Wena had operated the Luxor Hotel for less than eighteen months, and had not even completed its renovations on the Nile Hotel, before they were seized on April 1, 2009. In addition, there is some question whether Wena had sufficient finances to fund its renovation and operation of the hotels.⁵³⁶

Similarly, in *Tecmed v. United Mexican States*, the tribunal decided that:

The non-relevance of the brief history of operation of the Landfill by Cytrar – a little more than two years – and the difficulties in obtaining objective data allowing for application of the discounted cash flow method on the basis of estimates for a protracted future, [...] lead the Arbitral

⁵³⁴ *Southern Pacific Properties (Middle East) Limited v. Arab Republic of Egypt*, ICSID Case No. ARB/84/3, quoted in ICSID Reports, Volume 6, Edited by James Crawford and Karen Lee, Cambridge University Press, UK, 2004, p. 125.

⁵³⁵ *Metalclad Corp. v. United Mexican States*, Case No. ARB (AF)/97/1, Award of 30 August 2000, 40 ILM (2001), paras. 120-121.

⁵³⁶ *Wena Hotels Limited v. Arab Republic of Egypt*, ICSID Case No. ARB/98/4, Award on Merits of December 8, 2000, para. 124.

Tribunal to disregard such methodology to determine the relief to be awarded to the Claimant.⁵³⁷

In view of the awards referred to above, it can be construed that an investment must have at least three years of operation in order to qualify as a going concern in investment arbitration proceedings, and thus to be subject to assessment under the DCF method. However, the three-year term cannot be regarded as absolute: there may be industries where such term may prove insufficient, while in other fields of activity a smaller term may be adequate, on an exceptional basis.

When the investment in dispute has successfully functioned for more than three years, and provided that such investment is not under liquidation, it may be successfully construed that it qualifies as a going concern. For instance, in *National Grid P.L.C. v. Argentine Republic*, the tribunal held that:

The DCF method, while not without its drawbacks, has the advantage of realistically assessing the economic value of a going concern by relying on the stream of value that it can generate over its operative life. In order to function properly, the DCF approach requires that the concern in question must have a history of profitable operation. This does not appear to be a major issue in this case, since Transener has a history of almost nine years of successful operation.⁵³⁸

(ii) Exceptions: Application of the DCF Method to Investments with an Insufficient Track Record (Application Attributable to the Parties' Preference towards DCF, or to Start-up Investments Benefitting from Long-term Agreements)

Although, as a matter of principle in investment arbitration, in order to qualify as a going concern and, thus, be subject to valuation under the DCF method, an investment must prove a sufficient track record consisting of

⁵³⁷ *Tecnicas Medioambientales Tecmed S.A. v. The United Mexican States*, ICSID Case No. ARB (AF)/00/2, Award of 29 May 2003, para. 186.

⁵³⁸ *National Grid P.L.C. v. Argentine Republic*, UNCITRAL Arbitral Tribunal, November 3, 2008, para. 276.

several years of operations (as detailed above), there are cases when tribunals allowed the application of DCF even though the track record requirement was not met. This application of DCF constitutes an exception from the general principle referred to above and detailed under section 4.1.3.1.3.(i), and can be made in cases when (i) the parties share the common preference towards DCF; and (b) the investment at the centre of arbitration is a start-up benefitting from long-term agreement(s) – as detailed below.

(a) The Parties' Common Preference towards DCF

An investment involved in investment arbitration may be subject to a DCF valuation even if it has a life duration of less than three years, provided that the parties to the dispute agree to assess the value of the affected business under the DCF method.

This may be affirmed based on the practice of the US courts, where a DCF valuation was applied to a company having a life duration of approximately two (2) years. In *Lane v. Cancer Treatment Centers of America Inc.*, the Delaware Court of Chancery stated that ‘one can reasonably have doubts about the ability of a DCF to capture accurately the fair value of an emerging company with an earning history of less than two years.’⁵³⁹ However, given the fact that the valuation experts of both disputing parties preferred the DCF valuation, the court applied this valuation method for the calculation of the fair value of the business under dispute.

Although, to our knowledge, the agreement between the parties with respect to the application of the DCF method to an investment with less than three (3) years of past operations has not been registered yet in the practice of investment tribunals, there is no reason why this should not be possible in the future. As the parties to investment disputes have various procedural rights (which can include the right to elect and argue the application of their

⁵³⁹

Lane v. Cancer Treatment Centres of America Inc., Delaware Court of Chancery, 2004, para. 93.

preferred valuation method), the situation when both parties agree for the DCF method to be applied for the valuation of an investment with a short life duration should also be acceptable by the arbitral tribunal called to decide upon the dispute.

(b) Situation of Start-up Investments Benefitting from Long-term Agreements

Arbitral tribunals decided in some instances that certain investments can be subject to DCF valuation, although such investments have not proved a history of operations, but instead have secured long-term agreements. As noted by the arbitration doctrine, ‘in certain cases, the tribunals may find that the investments such as concession agreements are still going concerns which could generate some positive cash flow in the near future’.⁵⁴⁰ In such cases, arbitral tribunals may establish the value of the investments by employing the DCF method on the basis of the information offered by future income deriving from the concession agreements, even though the investment is a start-up without a proven history of operations and earnings.

A case where an arbitral tribunal found that an investment could be subject to DCF valuation, even if the investment actually operated for a very short period of time, is *Karaha Bodas Company LLC v. Perusahaan Pertambangan Minyakdan Gas Bumi Negara and PT PLN*. In this case, the dispute concerned an investment set up in Indonesia, for the purpose of producing and selling electricity. The corporate vehicle used to develop the investment was Karaha Bodas Company (‘KBC’), a limited liability company incorporated in the Cayman Islands in 1994, whose main shareholders were two US-based energy companies: Caithness Energy, L.L.C. (‘Caithness’) and Florida Power and Light Energy, L.L.C. (‘FPL’), each holding 40.5% of KBC’s share capital. In November 2004, KBC

⁵⁴⁰

A. Redfern, M. Hunter, N. Blackaby, C. Partasides, *Law and Practice of International Commercial Arbitration* (Kluwer Law International, 2004), p. 414.

entered into a Joint Operation Contract with Indonesia's national oil, gas, and geothermal energy company wholly owned by the Government of Indonesia (called Pertamina), whereby the parties agreed to jointly develop and operate certain energy facilities on two geothermal sites in Indonesia, and to produce electricity. Further, KBC and Pertamina concluded an Energy Sales Contract with Indonesia's electricity company, held by the Indonesian Government – called Pt. PLN Persero ('PLN'), pursuant to which KBC undertook to deliver and sell the electricity produced from the two Karaha Bodas geothermal power plants to PLN, on behalf of Pertamina⁵⁴¹, for a price of 8.46 cents (US)/KwH. The contracts provided that resolution of disputes between parties was to be settled by recourse to arbitration in accordance with the Arbitral Rules of the United Nations Commission on International Trade Law (the 'UNCITRAL Rules'). In 1997, the Indonesian economy was affected by the Asian financial crisis, and it became clear that PLN did not have the resources to fulfil its payment undertakings towards 27 power producers with whom it had entered into power purchase agreements, including KBC.

In January 1998, after a brief suspension and a temporary restoration of the project, the President of Indonesia issued a decree suspending the Project indefinitely as part of a national effort to stabilize the Indonesian economy.⁵⁴² In April 1998, KBC commenced arbitration proceedings under the UNCITRAL Rules, and claimed, *inter alia*, US \$512,000,000 lost profits associated with the 'loss of geothermal development opportunities'. This figure was based on the project's estimated cash flows over the 30 year life of the Energy Sales Contract with PLN, discounted at 8.5%, based on the specified quantities to be delivered to PNL in exchange for energy and

⁵⁴¹ For further details, please refer to Louis Wells, *Double Dipping in Arbitration Awards? An Economist Questions Damages Awarded Karaha Bodas Company in Indonesia*, (Arbitration International, 4, 2003), September 30, 2003, p. 1.

⁵⁴² *Karaha Bodas Company, L.L.C., Plaintiff-Appellee, v. Perusahaan Pertambangan Minyak Dan Gas Bumi Negara et al.*, Defendants, Perusahaan Pertambangan Minyak Dan Gas Bumi Negara, Defendant-Appellant, No. 02-20550, United States Court of Appeals, Fifth Circuit, June 18, 2003 ("Karaha Bodas"), para. 3.

capacity payments provided, minus its⁵⁴³ ‘prior investments as evidenced by the Report of its expert’.⁵⁴⁴ In December 2000, the arbitral tribunal rendered its award and stated that KBC was ‘*prevented from pursuing the performance of the binding contracts that it relied upon for reasons beyond its control [and] should not bear the consequences thereof.*’⁵⁴⁵ As a result, KBC was awarded damages for lost investments (sunk costs) of \$111.1 million and lost profits of \$150 million (*i.e.*, approximately a third of the amount initially requested by the claimant), plus arbitration costs and interest until those sums were paid.⁵⁴⁶

The arbitral tribunal held that the project, even though only at a very early stage of development, had already secured a reliable source of cash flow due to the execution by KBC of long-term (*i.e.*, 30 years) power purchase agreements. Therefore, the arbitrators considered that the project could have made profits over the 30 years validity period of the contracts, and therefore applied a valuation based on the cash flows that the investment would have probably generated, should the state interference had not occurred and if project would have been completed.⁵⁴⁷

⁵⁴³ Damages In Investor-State Arbitral Awards: A Review, Case Note – Karaha Bodas and Himpurna arbitrations, page 4, available online at http://www.biicl.org/files/2804_2000_himpurna_and_karaha_bodas_arbitrations_-_case_note.doc, accessed on 21 May 2013.

⁵⁴⁴ *Karaha Bodas*, para. 109.

⁵⁴⁵ Final Award in an Arbitration Procedure under the UNCITRAL Arbitration Rules, between Karaha Bodas Company and Perusahaan Pertambangan Minyakdan Gas Bumi Negara and PT PLN, 18 December 2000, para. 31.

⁵⁴⁶ United States Court of Appeals, Second Circuit, Docket Nos. 02-7513(L), 02-7515(CON), 02-7547(XAP), 02-7715(CON), 02-7717(CON), 02-7723(XAP), *Karaha Bodas Company, L.L.C., Petitioner-Appellee-Cross-Appellant, v. Perusahaan Pertambangan Minyak Dan Gas Bumi Negara, Respondent-Appellant-Cross-Appellee, Ministry of Finance of the Republic of Indonesia, Non-Party-Appellant-Cross-Appellee*, available at <http://caselaw.findlaw.com/us-2nd-circuit/1464092.html>, accessed on 25 May 2013.

⁵⁴⁷ Louis T. Wells, *Double Dipping in Arbitration Awards? An Economist Questions Damages Awarded Karaha Bodas Company in Indonesia* (Arbitration International, 4, 2003), September 30, 2003, p. 6.

The calculation of investment value on the basis of data offered by long-term agreements was also recognised in other investment arbitration cases. In *PSEG v. Turkey*, the arbitral tribunal noted that:

The Claimants also noted that line of decisions, but distinguish the situation where there have been contractual arrangements “that establish the expectation of profit at a certain level and over a given number of years,” which results in the concern regarding speculation being removed. The Tribunal would have no difficulty with this proposition, because in fact a self-contained and fully detailed contract can well determine a basis for the calculation of future profits. However, the Tribunal must also note that in many long-term contracts it is most difficult if not impossible to calculate such future profits with certainty, particularly if the contract is subject to adjustment mechanisms and other possible variations with time.⁵⁴⁸

Although the use of, and reliance on, information offered by long-term contractual arrangements were admitted as a matter of principle, the arbitral tribunal decided that such data would be inconclusive in the case, primarily because the financial terms of the contracts were not finally agreed upon between the parties. The tribunal held that ‘in this case the exercise becomes moot because the parties never finalized the essential commercial terms of the Contract, and as a result neither could the additional agreements concerning the sale of electricity, the Fund payments and the Treasury guarantee be finalized’.⁵⁴⁹

The conclusion derived from the decisions issued by the tribunals in *Karaha Bodas and PSEG v. Turkey* is that an investment may qualify as a going concern, and, thus, its value may be established using the DCF method, if such investment secures long-term contracts which would ensure predictable cash-flows for the future. In such case, it is less irrelevant how much time an investment actually operated, if the tribunal is provided with satisfactory evidence so as to conclude with certainty that the investment would continue

⁵⁴⁸ *PSEG Global, Inc., The North American Coal Corporation, and Konya Ingin Elektrik Uretimve Ticaret Limited Sirketi v. Turkey*, ICSID Case No. ARB/02/5, Award of 19 January 2007, para. 312.

⁵⁴⁹ *Ibid*, para. 313.

to operate and generate profits. At the same time, such view appears not to contradict the definition of ‘going concern’ provided by the World Bank Guidelines, which refers to the fact that the qualification of an enterprise as a going concern may be made if such enterprise operated for a ‘sufficient period of time to generate the data required for the calculation of future income’. When the data necessary for such calculation is available even though the enterprise operated for only a short period of time, the qualification of an enterprise as a going concern appears to be permitted by the Guidelines, as the ‘sufficient period of time’ may be viewed differently by arbitral tribunals and valuation appraisers, in accordance with the circumstances of each case.

4.1.3.1.4. Ability to Produce Revenues in the Future. Past Profitability as an Indicator

In addition to the track record requirement detailed above, in order to qualify as a going concern, an investment must also demonstrate an ability to continue to produce revenues in the future and to have profitability. This matter was addressed by the arbitral tribunal in *Amoco International Finance Corp. v. Iran*, which stated that ‘the undertaking [*at the centre of the dispute*] was a “going concern” which had demonstrated a certain ability to earn revenues and was, therefore, to be considered as keeping such ability for the future’⁵⁵⁰. The award issued by the arbitral tribunal in this dispute offers important information as to what indicates that a business will continue to be profitable in the future, and, thus, continue to earn revenues:

Khemco was a going concern at the time of the expropriation, even if its activity was temporarily reduced by reason of the events associated with

⁵⁵⁰

Amoco International Finance Corporation v. The Government of the Islamic Republic of Iran, National Iranian Oil Company, National Petrochemical Company and Kharg Chemical Company Limited, Partial Award No. 310-56-3 (1987), para. 203, quoted in *ICSID reports: reports of cases decided under the Convention on the Settlement of Investment Disputes between States and Nationals of Other States, 1965*, 4th Volume, edited by R. Rayfuse and E. Lauterpacht, Cambridge University Press, 1997, p. 293.

the revolutionary movement [...]. Going concern value, accordingly, is the measure of compensation in this case.

264. Going concern value encompasses not only the physical and financial assets of the undertaking, but also the intangible valuables which contribute to its earning power, such as contractual rights (supply and delivery contracts, patent licences and so on), as well as goodwill and commercial prospects. Although those assets are closely linked to the profitability of the concern, they cannot and must not be confused with the financial capitalization of the revenues which might be generated by such a concern after the transfer of property resulting from the expropriation (*lucrum cessans*).

265. The value of a going concern – of Khemco in this case – is “made up of the values of the various components of the undertaking separately considered, and of the undertaking itself considered as an organic totality – or going concern – therefore as a unified whole, the value of which is greater than that of its component Parts”; to take the words of the award in the AMINOIL case. [...] ⁵⁵¹

The above arbitral award indicates that an investment’s ability to earn revenues is connected to the level of goodwill ⁵⁵² and commercial prospects acquired by the investment at the centre of the dispute, and which would help the investment to successfully carry out its business in the future.

Likewise, in *Asian Agricultural Products v. Sri Lanka*, the qualification of an investment as a going concern was connected to the period of time required for the respective investment to acquire goodwill and business prospects. Noticing that normally such period of time would extend over at least two (2) or three (3) years, the tribunal held that:

[...] it would be appropriate to ascertain that “goodwill” requires the prior presence on the market for at least two or three years, which is the minimum period needed in order to establish continuing business connections, and during that period substantial expenses are incurred in

⁵⁵¹ *Amoco International Finance Corporation v. The Government of the Islamic Republic of Iran, National Iranian Oil Company, National Petrochemical Company and Kharg Chemical Company Limited*, Partial Award No. 310-56-3 (1987), paras. 263-265.

⁵⁵² Pursuant to IVS 2007, page 290, goodwill refers to ‘future economic benefits arising from the assets that are not capable of being individually identified and separately recognized’.

supporting the management efforts devoted to create and develop the marketing network of the company's products [...].⁵⁵³

The fact that Serendib exported for the first time two shipments to Japan during the same month [...] when its farm was destroyed, does not sufficiently demonstrate in the Tribunal's opinion "a certain ability to earn revenues" in a manner that would justify considering Serendib – by exporting for the first time in its short life – able to keep itself commercially viable as a source of reliable supply on the Japanese market. [...]⁵⁵⁴

Without putting into doubt the binding force of the rules requiring that the intangible assets including "goodwill" and "future profitability" of an enterprise have to be reflected in the evaluation of a "going concern", the Tribunal opinion is established on considering the assumptions upon which the Claimant's projections were based in the present case insufficient in evidencing that Serendib was effectively by [...], a "going concern" that acquired a valuable "goodwill" and enjoying a proven "future profitability", particularly in the light of the fact that Serendib had no previous record in conducting business for even one year of production.⁵⁵⁵

In view of the above, an investment's ability to continue to produce cash flows in the future relies to a great extent on the goodwill acquired by the investment, the investment's features, the contracts secured by the investment and its overall profitability. However, the most important indicator for an investment's future ability to generate cash flows appears to be its past operations: a past record of profitability is often regarded as the best evidence that a company or investment is capable of generating profit going forward.⁵⁵⁶

⁵⁵³ *Asian Agricultural Products Ltd. v. Sri Lanka*, ICSID Case No. ARB/87/3, 27 June 1990, para. 103.

⁵⁵⁴ *Ibid.*, para. 105.

⁵⁵⁵ *Ibid.*, para. 107.

⁵⁵⁶ Laura Hardin, Chris Milburn, *Valuation of 'Start-Up' Oil and Gas and Mining Projects*, in *The Arbitration Review of the Americas 2011*, available at <http://www.globalarbitrationreview.com/reviews/32/sections/114/chapters/1198/valuation-start-up-oil-gas-mining-projects/>, accessed on 6 April 2014.

4.1.3.2 Application of the DCF Method in case of Investments in Financial Difficulty

As explained under section 4.1.2, the application of the DCF method to investments qualifying as going concerns is generally recognised in investment arbitration. However, another issue which occurred in international and domestic disputes is the possibility to use the DCF method in order to assess the value of enterprises having difficulties in paying their debts as such debts become due. Particularly, the practice of tribunals considered the possibility to value an insolvent business by using the DCF method, and to establish whether such insolvent business could be regarded as a going concern.

Generally speaking, there is a risk that an insolvent business would fail to pay its creditors, because of the fact that, should the events that triggered the state of insolvency continue to exist, the income of the respective investment will continue to be lower than its due debts. Therefore, it may be optimistic to construe that, once an investment becomes insolvent, there is sufficient predictability as regards its future existence, ability to pay the debts to its creditors, or future cash flows. Instead, the state of insolvency is a state of uncertainty with regard to the future of the affected investment: the measures of debt restructuring applied during insolvency may lead to the financial and operational rehabilitation of the company, just as well as they may have no positive effect, in which case the affected enterprise would become bankrupt and would be closed. The practice of past years appears to indicate that most insolvent companies eventually become bankrupt and are liquidated, and their value can be assessed on the basis of the methods which consider the liquidation value.

The valuation of an investment in financial difficulties through the DCF method, and the qualification of such business as a going concern have raised discussions in the ICSID arbitration of *Rumeli and Telsim v. Kazakhstan*. In this case, the tribunal accepted to apply the DCF method for the valuation of an insolvent business, and held that:

Respondent's damage expert, Mr. Kaczmarek of Navigant Consulting, did not dispute that the DCF approach is a traditional method for valuing companies. He argued only that the DCF approach was inapplicable in the instant case

because, in his view, KaR-Tel was insolvent and could thus not be treated as a going concern as of April 2002. However, Mr. Kaczmarek did not address the question of solvency of KaR-Tel as of October 2003.

Claimants further point out that, contrary to Mr. Kaczmarek's opinion, Mr. Wright rightly explained that "[T]his was never in doubt, that it was a going concern... This was a fully operational company... They couldn't fund the financing, or they couldn't repay the Motorola Loan, that is balance sheet insolvent, but they were an ongoing business..."⁵⁵⁷ [...]

In the absence of any more reliable method of valuation, the Tribunal takes as its starting point the base case DCF valuation by Claimants' expert as at October 30, 2003 of USD 227 million for Claimants' 60% stake in Kar-Tel, after repaying the Motorola Loan. This figure assumes historical data derived in part from the period between April 2002 and October 2003, when Kar-Tel was under new management and adequately capitalised.⁵⁵⁸

In the tribunal's view, the DCF valuation method was accepted because other methods proved even less appropriate and therefore, despite the tribunal's dissatisfaction that no other methods could better suit the circumstances of the case, the DCF method was ultimately used for the assessment of the investment in insolvency.

Nonetheless, considering the rare use of the DCF method for the valuation of insolvent investments, and the limited grounds for such use, it can be concluded that the application of DCF to insolvent investments may be carried out only in exceptional cases.

4.2 Other Income Based Valuation Methods

Although the DCF method is the prevailing valuation method within the income based approach, it is not the only income based valuation instrument available for the purposes of establishing the value of investments at the centre of arbitral disputes. Other two valuation methods pertaining to the income based approach are the adjusted present value ('APV') method and the capitalized cash flow ('CCF') method, as detailed below.

⁵⁵⁷ *Rumeli Telekom A.S. and Telsim Mobil Telekomikasyon Hizmetleri A.S. v. Republic Of Kazakhstan*, ICSID Case No. ARB/05/16, 29 July 2008, paras. 726-727 and 813.

⁵⁵⁸ *Ibid*, para. 813.

4.2.1 Adjusted Present Value Method

The APV method is a valuation instrument within the income based approach which calculates the value of an investment based on the revenues to be obtained by the respective investment as if was financed entirely with equity from stakeholders (and that no debt is used), while also taking into account the present value of any financing side effects.⁵⁵⁹

Under the APV, the prospective cash flows to be generated by an investment are calculated and then discounted by the discount rates applicable if the firm would be financed only through equity⁵⁶⁰ (by contrast with the WACC method, which calculates the value of an investment on the assumption that each category of capital sources – debt and equity – is proportionately weighted⁵⁶¹). The company's value assuming no use of debt is referred to as the unlevered firm value.⁵⁶² Subsequently, valuation experts add (or subtract, as the case may be) the financing side effects from the investment's potential use of leverage.⁵⁶³ To this end, it is considered that the main advantage of borrowing consists in the potential tax benefits (*i.e.*, tax deductions or savings), and that the most important risk related to borrowing is the increased bankruptcy risk.⁵⁶⁴ Another advantage of borrowing is the possibility to deduct certain expenses associated with the borrowed amounts (*e.g.*, the interest) is also referred to as a 'tax shield' (due to the fact that expenses protect or shield certain revenues from being taxed by reducing

⁵⁵⁹ John Graham, Scott Smart, William Megginson, *Corporate Finance: Linking Theory to What Companies Do* (3rd Edition, Cengage Learning, 2010), pp. 467-468.

⁵⁶⁰ Ibid, p. 468.

⁵⁶¹ Geoff O'Brien, Nicola Pearsall, Phil O'Keefe, *The Future of Energy Use* (Routledge, 2010), p. 265. Also see <http://www.investopedia.com/terms/w/wacc.asp>, accessed on 21 March 2014.

⁵⁶² John D. Stowe, Thomas Robinson, Jerald Pinto, Dennis W. McLeavey, *Equity asset valuation* (John Wiley & Sons, 2007), p. 110.

⁵⁶³ John Graham, Scott Smart, William Megginson, *supra* note 559, p. 468.

⁵⁶⁴ Aswath Damodaran, *The Adjusted Present Value Approach*, available online at http://pages.stern.nyu.edu/~adamodar/New_Home_Page/valquestions/apv.htm, accessed on 17 March 2014.

the taxable incomes).⁵⁶⁵ In light of these aspects, the APV has been referred to as follows:

The adjusted present value is equal to the sum of the value of the unleveraged company and the value of the tax shield less the present value of the financial distress costs. Each of these components is discounted at different rates representing the different risks.⁵⁶⁶

The implementation of the APV method usually consists in three steps:

First, we begin by estimating the value of the firm with no leverage. We then consider the present value of the interest tax savings generated by borrowing a given amount of money. Finally, we evaluate the effect of borrowing the amount on the probability that the firm will go bankrupt.⁵⁶⁷

The APV is based on the idea that the value of a levered investment is equal to the value of an unlevered investment, plus an adjustment for tax savings.⁵⁶⁸ From this perspective, an investment which acquired an amount of debt would be more valuable to a potential third-party buyer than an unlevered investment (especially due to the fact that the levered investment might benefit from tax deductions (*i.e.*, a levered firm will pay less taxes to the host state when compared to an identical unlevered firm, thus leaving more funds available to the levered firm's investors).⁵⁶⁹ However, there are certain risks associated with this line of thinking:

APV valuation in practice has significant flaws. The first and most important is that most practitioners who use the adjusted present value model ignore expected bankruptcy costs. Adding the tax benefits to unlevered firm value to get to the levered firm value makes debt seem like an unmixed blessing. Firm value will be overstated, especially at very high debt ratios, where the cost of bankruptcy is

⁵⁶⁵ James Van Horne, John Wachowicz, *Fundamentals of financial management* (13th Edition, Prentice Hall, 2009), p. 408.

⁵⁶⁶ Thierry Senechal, *Dealing with Uncertainty: Discounted Cash Flow (DCF) Versus Adjusted Present Value (APV)*, Transnational Dispute Management Special Issue on Energy Disputes, vol. 4, issue 3, p. 3.

⁵⁶⁷ Ibid.

⁵⁶⁸ Eugene Brigham, Phillip Daves, *Intermediate Financial Management* (10th Edition, South-Western Cengage Learning, 2010), p. 905.

⁵⁶⁹ Ibid.

clearly not zero and, in some instances, the cost of bankruptcy is higher than the tax benefit of debt.⁵⁷⁰

Despite the above downsides, if the risks associating with over-estimating the benefits of debt are observed and taken into account, the APV can prove a useful tool for the assessment of investments with complex leverage structures or income tax arrangements, which might be present, *inter alia*, in the oil and gas sectors.⁵⁷¹ In this sense, it might be argued that the AVP method could improve the DCF method by taking into account financial and tax benefits during the valuation process.⁵⁷²

The APV method (as a method within the income based approach) must not be confused with the adjusted book value, which is a distinct valuation method under the asset based approach to the valuation of investments at the centre of arbitral disputes. However, although the adjusted book value was applied to date in international arbitration,⁵⁷³ the adjusted present value was, to our knowledge (and as also noted by the legal doctrine⁵⁷⁴), not yet applied in investor-state disputes.

4.2.2 Capitalized Cash Flow (or Capitalization of Earnings) Method

The capitalized cash flow (CCF) method is considered a simplified form of the DCF method, and is also based on the idea that investments are worth the present value of their future economic streams.⁵⁷⁵ Other terms for the CCF method are the capitalization

⁵⁷⁰ Aswath Damodaran, *The Adjusted Present Value Approach*, http://pages.stern.nyu.edu/~adamodar/New_Home_Page/valquestions/apv.htm, accessed on 17 March 2014. See also Thierry Senechal, *Dealing with Uncertainty: Discounted Cash Flow (DCF) Versus Adjusted Present Value (APV)*, Transnational Dispute Management, June 2007, p. 1, for further elements of comparison between the DCF and APV methods.

⁵⁷¹ Manuel A. Abdala, *Key Damage Compensation Issues in Oil and Gas International Arbitration Cases*, The American University International Law Review, Volume 24, No. 3, 2008, p. 554, quoting Timothy A. Luehrman, *Using APV: A Better Tool for Valuing Operations*, Harv. Bus. Rev., May-June 1997, at 154.

⁵⁷² Kantor, *supra* note 11, at 212.

⁵⁷³ For example, in the practice of the Iran-US Claims Tribunal, the adjusted book value was applied in *Sedco v. NIOC* (Final Award, 15 Iran -US Claims Tribunal, 1987, 23, para. 297).

⁵⁷⁴ Kantor, *supra* note 11, at 214.

⁵⁷⁵ James R. Hitchner, *Financial valuation: applications and models* (2nd Edition, John Wiley & Sons, 2006), p. 131.

of (historical) earnings method and direct capitalization method.⁵⁷⁶ Unlike the DCF, the CCF method assumes that the rates at which the cash flow is expected to grow (the ‘growth rates’) and the discount rates to be applied to the cash flows generated by the investment subject to valuation would remain constant into perpetuity⁵⁷⁷ (and also during the valuation period). In addition to that, unlike the DCF method, which calculates separate cash flow projections for different future periods in the envisaged life of the investment (*i.e.*, the initial forecast period, usually of five (5) to ten (10) years, and the period thereafter, aimed at establishing terminal value), the CCF uses a single-period model to estimate value⁵⁷⁸ and assumes constant growth rates and discount rates over time.⁵⁷⁹

In investment valuation, the difference between the discount rate and the growth rate is also known as the capitalization rate.⁵⁸⁰ The capitalization rate is defined by IVS as ‘the return represented by the income produced by an investment, expressed as a percentage’.⁵⁸¹ The capitalization rate used under the CCF method is distinct from the discount rate used under the DCF method: while a discount rate represents a ‘rate of return used to discount projected cash flows to a present value, [...] a capitalization rate is a rate used to capitalize a single period cash flow that represents a steady state with constant growth into perpetuity’.⁵⁸²

The CCF method is used to assess the value of an investment usually when the historical financial information of the respective investment is available (for instance, average earnings of recent years, EBIT or EBITDA multipliers or similar indicators), and when the future performance of the investment is expected to be consistent with the past

⁵⁷⁶ Ian Ratner, Grant Stein, John Weitnauer, *Business Valuation and Bankruptcy* (John Wiley & Sons, 2009), p. 58.

⁵⁷⁷ James Hitchner, *supra* note 575, at 139.

⁵⁷⁸ Ian Ratner, Grant Stein, John Weitnauer, *supra* note 576, at 57-58.

⁵⁷⁹ For details, please refer to Gerard M. Zack, *Fair Value Accounting Fraud: New Global Risks and Detection Techniques* (John Wiley & Sons, 2009), p. 31.

⁵⁸⁰ Kantor, *supra* note 11, at 216.

⁵⁸¹ IVS 2013, Technical Information Paper 1 - Discounted cash flow (DCF), available at <http://standards.ivsonline.org/mod/page/view.php?id=121> (accessed on 6 December 2014).

⁵⁸² Ian Ratner, Grant Stein, John Weitnauer, *supra* note 576, at 58.

results.⁵⁸³ However, when prior data relating specifically to the investment subject to valuation is not available, the information regarding comparable investments may also be used under the CCF method for the calculation of the future cash flows to be generated by the investment⁵⁸⁴). The CCF method has also been used for the calculation of the so-called ‘terminal value’ of an investment within DCF valuations.⁵⁸⁵

Based on such prior data, the aggregated future cash flows to be generated by the investment during the valuation period are estimated, and then the capitalization rate is applied in order to calculate the present value of estimated cash flows. As a result, the present value of an investment established pursuant to the CCF method is the equivalent of the expected cash flows to be generated by the investment in a particular period of time (*e.g.*, five year), divided by the capitalization rate.⁵⁸⁶ Consequently, the higher the cash flows to be produced by an investment and the lower the capitalization rate, the greater the estimated value of the investment.⁵⁸⁷ For this reason, the past information regarding the investment subject to valuation must be reliable, and furthermore that the capitalization rate must be established accurately in order for the overall valuation exercise to be precise. However, reaching such accuracy is not an easy process, because the mechanism through which the capitalization rate is calculated might be based on assumptions (*i.e.*, that the cash flow to be generated is perpetual, that the income is unchanging, and also that the risk and the discount rate is unchanging) that would be very difficult to be confirmed in practice by the actual course of events following the valuation date.⁵⁸⁸ As noted by economist R. Brown, ‘all of these assumptions are virtually guaranteed to be wrong; [...] little exists in perpetuity, and change is inevitable’.⁵⁸⁹

⁵⁸³ For details, please refer to James Hitchner, Michael Mard, *supra* note 365, p. 55.

⁵⁸⁴ For details regarding the comparability criteria, please refer to section 3.3.2.1 above.

⁵⁸⁵ James Hitchner, *supra* note 575, at 139.

⁵⁸⁶ Ian Ratner, Grant Stein, John Weitnauer, *supra* note 576, at 58.

⁵⁸⁷ Bill Roark, Ryan Roark, *Concise encyclopaedia of real estate business terms* (Haworth Press, 2006), p. 20.

⁵⁸⁸ Roger Brown, *Private real estate investment: data analysis and decision making* (Academic Press, 2005), p. 49.

⁵⁸⁹ *Ibid.*

To our knowledge, up to date, the CCF method was not used for the assessment in investment value in investor-state disputes. This is may be explained by the general perception that the CCF may only be rarely used as a sole method in complex valuation projects⁵⁹⁰ and that, instead, for the valuation of businesses with the magnitude of investments at the centre of arbitral disputes, the DCF method should be preferred.

⁵⁹⁰

James Hitchner and Michael Mard point out that ‘*capitalized cash flow methods are most often seen in valuations of small businesses, since that is how they are often bought and sold*’ (see James Hitchner, Michael Mard, *supra* note 365, at 55).

5. COMPARATIVE ANALYSIS OF APPROACHES USED FOR THE VALUATION OF INVESTMENTS IN ARBITRAL DISPUTES

The existence of multiple valuation approaches and methods, available to arbitral tribunals for assessing the value of investments, triggers the academic and practical necessity of exploring, through a comparative analysis involving the three recognised valuation approaches, the reasons why one or more valuation approaches should be used instead of others for assessing investment value in particular investment arbitration cases.

Such comparative analysis of the valuation approaches used in investment arbitration implies to parallel and correlate three different groups of items (the asset, market and income based approaches, detailed in previous chapters) which, apart from serving the purpose of determining the value of investments value, apparently have little in common,⁵⁹¹ but, on the contrary, have specific features. Because of such specificity, although there is a small number of legal authors who examined all valuation approaches (on a one by one basis), a tripartite analysis aimed at comparing and contrasting approaches has not been made to date in legal scholarly writings.

Even no legal literature exists with respect to the comparative analysis of valuation approaches in the context of investment disputes, the present thesis identifies, starting from the current investment arbitration practice, three perspectives for analysing and comparing valuation approaches, namely:

- (i) **The first perspective** for comparison scrutinises how valuation approaches relate to, and may be applied in case of, different types of investment regularly encountered in investment arbitration arena. The relationship between valuation approaches and type of investment is important as it clarifies which approaches are more appropriate than others for assessing

⁵⁹¹ Scott Sandford, *Apples and Oranges - A Comparison*, NASA Ames Research Centre, Mountain View, California, <http://improb.com/airchives/paperair/volume1/v1i3/air-1-3-apples.html>, accessed on 9 January 2013.

value of particular categories of investments. This perspective is detailed in section 5.1 of this chapter 5.

- (ii) **The second perspective** for comparison relates to how valuation approaches may be used in relation to the documentary evidence and sources of information available, in investment arbitration proceedings, with respect to the investment subject to assessment. This perspective is used to assess if and why some approaches are more suitable than others for assessing the value of an investment when a specific type of data regarding the investment is available in arbitration proceedings. This perspective is included in section 5.2 of this chapter 5.
- (iii) **The third perspective** for comparison derives from the fact that certain arbitral tribunals concentrate less on the overall investment value, and focus mainly on the value of losses suffered by the investor as a result of the host state's actions. In such instances, the valuation approaches come into play to establish the value of such losses. As the typical cases of losses include the loss actually suffered by the investor (*damnum emergens*) and the loss of profits (*lucrum cessans*), this third perspective is used to assess which valuation approaches are better fitted to establish the extent of these two major types of losses. For clarity purposes, this third perspective regards how valuation approaches may be used to assess losses affecting the investments, and not directly the value of investments. This perspective is detailed in section 5.3 of this chapter 5.

These perspectives are specific to analysing valuation approaches in the context of international investment arbitration, and therefore may be regarded as veritable qualitative criteria for comparing valuation approaches. The three perspectives are

presented below, complemented by examples from the investment arbitration jurisprudence.⁵⁹²

5.1 First Perspective for Comparison: Types of Investments to Which Valuation Approaches Apply in Investment Arbitration

The general term of investment designates a large diversity of business enterprises, property, rights and contracts. This variety is expressly set forth in bilateral investment treaties for the protection and promotion of investments (BITs),⁵⁹³ is endorsed in the practice of investment tribunals⁵⁹⁴ and detailed in the investment legal doctrine.⁵⁹⁵ The main types of investments which, in addition to being referred to in the above sources, are also regularly encountered in investment disputes, consist of:

- (i) **commercial enterprises.** Most BITs include, as investments, commercial companies or parts thereof (such as shares, stock or interests related to such companies). As the commercial enterprises involved in investment disputes

⁵⁹² The order in which the valuation approaches are comparatively analysed in chapter 5 mirrors the order in which they have been assessed individually (*i.e.*, the asset based approach, followed by the market based approach, and subsequently the income based approach to valuation of investments at the centre of arbitral disputes).

⁵⁹³ For instance, the Agreement Between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the People's Republic of China concerning the Promotion and Reciprocal Protection of Investments entered into force on 15 May 1986 (available at http://unctad.org/sections/dite/ia/docs/bits/uk_china.pdf, accessed on 10 July 2014) provides that 'investment' means 'every kind of asset accepted as investment by a Contracting Party in its territory in accordance with its laws and regulations, and in particular, though not exclusively, includes:

- (i) *movable and immovable property and any other property rights such as mortgages, liens or pledge;*
- (ii) *shares, stock and debentures of companies or interests in the property of such companies;*
- (iii) *claims to money or to any performance under contract having a financial value;*
- (iv) *copyrights, industrial property rights, know-how and goodwill;*
- (v) *business concessions conferred by law or under contract permitted by law; including concessions to search for, cultivate, extract or exploit natural resources.'*

⁵⁹⁴ For instance, in *Malaysian Historical Salvors, SDN, BHD v. The Government of Malaysia* (ICSID Case No. ARB/05/10), in *Salini Costruttori S.p.A. and Italstrade S.p.A. v. Kingdom of Morocco* (ICSID Case No. ARB/00/4), in *Joy Mining Machinery Limited v. Arab Republic of Egypt* (ICSID Case No. ARB/03/11).

⁵⁹⁵ Christoph Schreuer, *supra* note 418, p. 90 *et seq.*

may be at different stages of development (such as start-up businesses, going concerns, businesses in financial difficulties), the comparative analysis will regard each of these sub-types of investments;

- (ii) **separate assets** – which are generally referred to in BITs as movable and immovable property and any other property rights; and
- (iii) **contracts.** Most BITs refer generally to contracts and rights conferred by contract in relation to investments,⁵⁹⁶ while some BITs refer specifically to specific types of contracts such as concessions pertaining to natural resources.⁵⁹⁷

While it cannot be denied that the other types of investments referred to in BITs may also give rise to arbitration disputes, the current practice of investment tribunals indicates that certain types of investments (such as goodwill and intellectual property rights) are in most cases ancillary to other principal types of investments (such as business enterprises, assets or contracts). Therefore, the current section focuses on the principal types of investments (as listed above) and, based on the particular features thereof, analyses which approaches are appropriate for assessing the value of such types of investments.

5.1.1 Commercial Enterprises

5.1.1.1 Start-up Investments

The concept of start-up businesses (or emerging companies) refers to commercial enterprises which have been in operation for a short period of time, or which have never actually commenced productive commercial or industrial activities due to state

⁵⁹⁶ For instance, the Treaty between the United States of America and the Russian Federation concerning the Promotion and Reciprocal Protection of Investment signed on 17 June 1992, article I.

⁵⁹⁷ The Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Republic of Cuba for the Promotion and Protection of Investments entered into force on 11 May 1995.

interference, although they were formally established after the implementation of several pre-establishment actions.

As explained in chapter 4 above, an investment operating for at least two (2) or three (3) years would typically qualify, in investment disputes, as a going concern. An investment with a life span shorter than a going concern would qualify as a start-up business, provided also that such investment is reasonably expected to continue its operation and is not involved in liquidation, insolvency, bankruptcy or other similar procedures which would indicate financial distress.

The features of start-up businesses (especially their limited life duration) trigger several particularities regarding the potential valuation approaches which may be successfully applied for the valuation thereof. From a comparative perspective, such particularities indicate important features of the valuation approaches (including their ability or inability to assess start-ups' value), as detailed below.

(i) The Asset Based Approach

As detailed under chapter 2, the asset based approach takes into account the assets and liabilities pertaining to the investment subject to valuation, regardless of the investment's life duration. Most methods belonging to the asset approach provide the tools for arbitrators or valuation experts to assess the costs of developing the investment subject to valuation, or an investment similar to the one subject to valuation. In the case of start-ups, the cost required to duplicate (or the 'cost-to-duplicate'⁵⁹⁸) the investment under valuation is subject to minor reductions related to the depreciation or depletion of assets comprising the investment. This is based on the fact that start-ups have a life history of maximum two or three years, and therefore their constituent assets have not been subject to a substantial depreciation.

⁵⁹⁸

Please also refer to <http://www.investopedia.com/articles/financial-theory/11/valuing-startup-ventures.asp#axzz2luCXW000>, accessed on 27 August 2014.

For this reasons, the value of a start-up, as established under the asset approach, would be close to the co-called ‘reproduction cost – new’.⁵⁹⁹

Since the asset based approach requires mainly information related to the value of assets acquired and liabilities incurred by the investment under valuation, this approach can be applied for the assessment of start-ups, notwithstanding if a market for such start-ups exists or not. An aspect which facilitates the application of the asset based approach to start-ups resides in the fact that the costs actually incurred and the liabilities undertaken by the investor during the development of the investment are fairly recent (*i.e.*, not exceeding two or three years) and therefore close to the valuation date. Also, the information regarding such costs and liabilities is usually accessible for the purposes of valuation in investment arbitration – for instance, the start-up’s assets are registered in special accounting inventories, the liabilities may be documented with invoices, bank transfer documents and/or agreements etc. Consequently, in consideration of such assets and liabilities, the value of start-ups may be obtained with accuracy.

The above position with respect to the valuation of start-up investments based on the asset approach is reflected, among others, in *Wena v. Egypt*,⁶⁰⁰ where the tribunal noted the short lifespan of the investment at the centre of the dispute. In consideration of this, the tribunal rejected the application of an income based valuation (under the DCF method) and concluded that the value of the start-up investment should be calculated under the asset approach by reference to the amounts actually invested:

⁵⁹⁹ The concept of ‘replacement cost new’ is also used in investment valuation. While the replacement cost new relates to the cost of developing an asset with the same utility, the reproduction cost new refers to the cost of developing an exact duplicate. For details, please see Willamette Management Associates, *Intangible Asset Valuation – Cost Approach Methods and Procedures*, Presentation held by Robert F. Reilly (CPA) to the Business Valuation Association Chicago, Illinois, September 20, 2012, p.49 *et seq.*, available online at http://www.willamette.com/pubs/presentations2/reilly_bva_cost_approach.pdf, accessed on 2 April 2012.

⁶⁰⁰ *Wena Hotels Limited v. Arab Republic of Egypt*, Case No. ARB/98/4, Award of 8 December 2000.

124. [...] Wena had operated the Luxor Hotel for less than eighteen months, and had not even completed its renovations on the Nile Hotel, before they were seized on April 1, 1991. [...] ⁶⁰¹

125. [...] the Tribunal agrees with the parties that the proper calculation of “the market value of the investment expropriated immediately before the expropriation” is best arrived at, in this case, by reference to Wena’s actual investment in the two hotels. ⁶⁰²

In spite of the aforementioned possibility to assess the value of start-up investments pursuant to the asset based valuation approach, it may also be noted that the value of intangible assets pertaining to the start-up are not reflected in all circumstances in the valuation results. For instance, it would be impossible for a valuation expert or arbitrator to find and allocate, under an asset based valuation, a replacement value for certain types of intellectual property, trade secrets and recipes, or to unique intangibles which comprise the investment (such as particular licenses which offer a privileged position on the market on which the start-up operates⁶⁰³), as long as such intangibles do not have a book value.

(ii) The Market Based Approach

As regards the applicability of market based valuation instruments for the valuation of start-ups in the investment arbitration, it may be noted that start-up investments are usually enterprises at an early stage of development and, as such, are generally not yet listed on the stock exchange (since start-ups would not meet the criteria required by the stock exchanges in terms of financial standing, previous operation, public interest etc.). Consequently, the market based methods centred on the prices of publicly traded similar companies would not be applicable in case of start-up investments.

⁶⁰¹ Ibid, para. 124.

⁶⁰² Ibid, para. 125.

⁶⁰³ Willamette Management Associates, *Intangible Asset Valuation – Cost Approach Methods and Procedures*, Presentation held by Robert F. Reilly (CPA) to the Business Valuation Association Chicago, Illinois, September 20, 2012, available at http://www.willamette.com/pubs/presentations2/reilly_bva_cost_approach.pdf, accessed on 2 April 2012.

Also, in most cases, a market for privately owned (and not publicly traded) start-ups with similar features with the one subject to valuation in investment disputes appears difficult to identify, aspect which renders difficult, or even impossible, the application of the market based approach. Only by way of exception, in case of certain areas of economy, there is an established market for privately owned start-up businesses which have secured licences or contracts, or which otherwise benefit from a particular competitive advantage. For example, the market for newly permitted renewable energy projects is well developed in certain countries and is based on the level of permitted or secured installed capacity, even if such projects qualify as start-ups and have not actually begun operation.⁶⁰⁴ Likewise, the market for new technological or IT businesses witnesses several transactions involving start-ups, thus creating the premises for the application of the market based approach to start-up businesses in this economic area.

Even though to date no precedents as regards the application of the market based approach to start-up investments were established in investment arbitration, it would be nonetheless impossible to completely exclude the application of the market based methods to start-ups. On the contrary, a market based valuation of privately owned start-up investments at the centre of investment disputes may prove acceptable provided however that (i) a market for the privately owned start-up investment subject to valuation can be identified, and (ii) information of appropriate comparables already transacted on the market is available.

(iii) The Income Based Approach

The income based approach has a limited applicability in case of start-up businesses, because it would require the investment subject to valuation to prove a sufficient history of operations and an adequate track record of

⁶⁰⁴

For details about the renewable wind energy projects in Europe, please refer to <http://www.ewea.org/>, accessed on 8 April 2012.

earnings. Such track record would offer the arbitrator or valuation expert necessary information to estimate the future cash flows and earnings to be generated by the investment, and therefore the overall value of the investment.

As start-up investments have a life of no more than two or three years, the income based approach (and the methods subsumed to this approach) is not applicable for the valuation of such investments as a result of the lack of information regarding their track record. This position has been adopted specifically in investment disputes under ICSID, where it has been decided that the short history of operations of the start-up investment at the centre of the dispute would render the future cash flow of the respective investment unpredictable, and thus unsuitable for an income based valuation. For instance, in the ICSID case of *SPP v. Egypt*, the tribunal decided the following:

DCF method is not appropriate for determining the fair compensation in this case because the project was not in existence for a sufficient period of time to generate the data necessary for a meaningful DCF calculation.⁶⁰⁵

A similar reasoning may be found in the practice of US courts, where, based on the lack of necessary data for the income based calculation, it was decided that ‘[o]ne can reasonably have doubts about the ability of a DCF analysis to capture accurately the fair value of an emerging company with an earnings history of less than two years’.⁶⁰⁶

An additional ground for which the income based approach is inappropriate for the valuation of start-up investments is that, in case of such new businesses, the applicable discount rate to be factored in the income based valuation cannot be assessed with accuracy. Generally, the discount rate applicable under the income based approach to the total value of future

⁶⁰⁵ *Southern Pacific Properties (Middle East) Ltd. v. Arab Republic of Egypt*, ICSID Case No. ARB/84/3, Award of 20 May 1992, para 188.

⁶⁰⁶ *Lane v. Cancer Treatment Centres of America, Inc.*, 2004 Del. Ch. Lexis 108, at p. 93.

estimated cash flows is aimed at calculating the investment's value as of the valuation date, by reflecting in the valuation the risk factors which may affect the investment during its prospective life duration. However, such discount rate may not be precisely determined if, given the start-up's short existence, there is insufficient information regarding the risk factors actually impacting its operation. While some risk factors (such as increase of inflation) may be foreseeable and generally applicable to all enterprises operating in a country, the particular risks which may impact specifically the start-up (such as consumer trends, evolution of prices for the investment's products, occurrence of new competitors on the market etc.) cannot be identified and transposed into the valuation if the investment has an insufficient lifespan.

Furthermore, at an early stage of development, a large number of start-up investments do not reach break-even status (*i.e.*, the costs and expenses incurred are higher than the revenue produced by the investment). Similarly, in several cases of start-up investments, their track record would indicate a level of earnings which is very small or even close to zero. Thus, if hypothetically an income based approach would be applied to a start-up, the value of previous insignificant earnings would indicate that the investment's future cash flows would also be minor, which under income based valuation principles would trigger the conclusion that the investment's total net present value would be also near zero. However, if an asset based valuation would be made, at the same time, in relation to the same investment, the results thereof may indicate that the invested amounts and incurred costs in relation to the development of the investment are at a significantly higher level than the future income of the start-up estimated under the income approach (which, if assessed based on initial small revenues, would be also close to zero).

The discrepancy between the amounts actually invested in start-ups and the estimated future cash flows, in conjunction with the generally accepted idea that no rational investor would invest without the informed expectancy of

return and profit, indicate that the income based approach lacks the ability to take into account and transpose in the valuation, in case of start-up investments, their income generating capacity and elements on which the investor has originally based its investment decision (such as the capacity to offer new products on the market, demand for certain services, potential of new resources, investor's trade secrets, innovative ideas, market opportunities, management team, employees etc.). Thus, the use of the income based approach for the valuation of a start-up, as illustrated in the above hypothetical example, is therefore one of the instances when an income based valuation would be, in principle, inappropriate.

(iv) Summary

The most appropriate valuation approach to be applied in investment arbitration for the purposes of assessing the value of start-up investments is the asset based approach. In this case, the funds required for the substitution of the start-up investment subject to valuation with a similar one are the primary indicator of value. Although such approach does not always include the value of intangible or non-fungible assets in the valuation, its main advantage is the lower degree of speculation involved.

Also, in certain circumstances (as referred to above), the market based approach can be applicable to start-up investments, provided that a market for the start-ups similar to the investment exists and that the relevant comparables may be identified for the purposes of valuation.

Unlike the asset and market approaches, in principle, the income based valuation approach is not suitable in investment arbitration for the calculation of the value of investments qualifying as start-ups, because start-ups have no established track record of earnings which would allow the accurate estimation of future their cash flows or overall value of the investment.

5.1.1.2 Going Concern Investments

Some of the most frequently encountered types of investments at the centre of investment disputes are investments with a proven history of operations and with prospects of continuing their activity (the so-called ‘going concerns’). When regarded from the overall perspective of an investment’s lifetime, the going concern status is subsequent to the start-up status, and thus pertains to investments with a lifespan of more than two or three years. Going concerns usually satisfy the criteria pursuant to which, in order to qualify as investment, a business venture must have a certain duration and must contribute to the host state’s development⁶⁰⁷ (aspects which regularly require a reasonable period of time).

The analysis of how valuation approaches may be employed for the assessment of the going concern value (especially in light of the particular characteristics of going concern investments) indicates, from a comparative perspective, several distinctive features of the valuation approaches, as detailed below.

(i) The Asset Based Approach

From an asset based approach perspective, the value of going concern investments is assessed in consideration of the costs of assets and services involved for the setting-up and development of the investment.

The application of asset based valuation methods to investments qualifying as going concerns⁶⁰⁸ implies that the income producing features of going concerns are disregarded, and that the going concern investments subject to valuation are viewed only as a multitude of assets and costs. Thus, such valuation ignores the value of ‘future income [...] which could have been expected with reasonable certainty’⁶⁰⁹ to be generated by a going concern for

⁶⁰⁷ Rudolph Dolzer, Christoph Schreuer, *supra* note 4, pp. 62-64.

⁶⁰⁸ The valuation object (*i.e.*, going concerns) would in most cases exclude from the start the application of liquidation value methods.

⁶⁰⁹ The World Bank Guidelines on the Treatment of Foreign Direct Investment, art. IV, para. 6.

its owners, as well as the importance of intangible assets (such as goodwill, market position, client base) within the overall worth of the going concern.

However, even though the asset based approach does not reflect the income producing features of the going concern investments, in investment disputes such approach has the advantage of avoiding valuation outcomes which would result in over-compensating the claimants through double counting, as may be the case if an income based valuation method would be involved. In this respect, if the value of a going concern investment would be established in arbitration proceedings under an income based method, such value would include the future profits to be probably derived by the investor during the investment's life. In such a case, an affected investor with a successful claim would receive, at the end of an investment dispute, the value of financial benefits that such investor would have normally derived in the future, after several years of operating the investment at the centre of arbitration. In the scenario when future profits are anticipated and awarded by tribunals as compensation, the affected investor would be able to receive the equivalent of future profits (i.e., the value thereof as of the valuation date or the arbitration award) sooner than the date when such profits would have normally occurred. Thus, the investor would be able to take such amounts, to re-invest them, and to gain, in addition to the future profits awarded by the arbitral tribunal, another set of profits *based on the same invested capital*.

On the other hand, when an asset based method is used for the valuation of a going concern investment, the investor who would be successful in an investment dispute would receive, at the end of such dispute, only the investment value reflecting the amounts actually spent when developing the investment, or the amounts necessary to acquire assets needed for the development of an investment similar to the one affected by the host state, which would replace the initial investment affected by the host state's actions. Therefore, the application of the asset based approach for the valuation of going concern investments eliminates the possibility for an

affected investor to obtain a double set of profits as a result of being compensated, in an investment dispute, in relation to only one investment.

Another advantage of applying the asset based approach for the purposes of establishing the value of going concern investments is that such application would involve a low degree of speculation or subjectivity. Unlike other methods which imply a larger number of assumptions and deductions (*e.g.*, the income based approach estimates the envisaged future incomes and discounts them in order to establish the value of investments as of the valuation date, while the market based approach determines the value of investments starting from the possible price involved to be obtained in a simulated transaction), the asset based methods take into account the past costs and expenses actually incurred for the purposes of developing the investment, or the costs required to replace the investment with a similar one. Such costs and expenses are documented by way of receipts, contracts, bank statements and other accounting evidence, thus leaving little or no room for speculation.

Since only costs and expenses necessary for the investments development are taken into account for the purposes of calculating the value of investments, the values established for going concern investments under the asset based methods are, usually, the lowest values,⁶¹⁰ being almost never surpassed by the values assessed under income and market based valuations regarding the same valued investment. The differences between the value of going concern investments established under the asset based approach and the value established under the income based approach is grounded on the fact that the latter does not attribute value to future cash flows and revenues to be registered by the investment. Similarly, the disparity between the results of

⁶¹⁰

The exception would be in cases when the value of assets invested would be larger than the value of future cash flows, or the cases when the aggregated value of assets would be lower than the sale value of the entire investment. In both cases however, the lower income and market values would correspond to a going concern in decline, whose activity is decreasing and/or clientele is diminishing.

asset based valuation and market based calculation with respect to the same investment results from the fact that the asset based methods do not take into account, among others, the value of intangibles comprised in the investment (such as goodwill, intellectual property developed by the investment, employees, market position etc.), but instead regards the investment as a multitude of assets which can be simply substituted with similar ones.

(ii) The Market Based Approach

Alternatively to the asset based approach, the value of going concern investments at the centre of investment disputes may be assessed, under the market based approach, by reference to the value which would be obtained by the owners of the going concerns, if the investments subject to valuation were sold to independent third party buyers willing to acquire the investments.

The possibility to establish the value of going concern investments pursuant to the market based approach was accepted in a significant number of arbitration cases where several valuation methods pertaining to the market based approach were applied. The shares prices method was endorsed in the practice of the Iran-U.S. Claims Tribunal (an illustrative example is *Khosrowshahi v. Iran*⁶¹¹), as well as in the ICSID jurisprudence (for instance *AGIP v. Congo*⁶¹²). Similarly, the EBITDA based method was involved in *Sempra v. The Argentine Republic*,⁶¹³ the partial sales method was used in *Enron v. Argentina*⁶¹⁴ etc. An extensive review of cases regarding the application of such market based methods may be found in chapter 3 above.

⁶¹¹ *Iran-U.S. Claims Tribunal Reports*, Volume 24, Edited by J.C. Adlam, Consulting Editor E. Lauterpacht (Cambridge, Grotius Publications Limited, 1991), p.41.

⁶¹² *AGIP SpA v. Congo*, Award of 30 November 1979, (1993) 1 ICSID Reports, para. 18 *et seq.*

⁶¹³ *Sempra Energy International v. Argentine Republic*, ICSID Case No. ARB/02/16, Award of 28 September 2007, para. 440.

⁶¹⁴ *Enron Corporation, Ponderosa Assets v. The Argentine Republic*, ICSID Case No. ARB/01/3, 22 May 2007, para. 430 *et seq.*

From the market based methods used for calculating the value of going concerns, the methods centred on economic multiples related to earnings (such as EBITDA and EBIT) appear to be particularly suitable for the purposes of assessing the value of going concerns. These methods are based on establishing the value of investments by multiplying the EBITDA / EBIT levels with a multiplication factor applicable to companies similar to the ones at the centre of investment disputes. A primary advantage for the application of EBITDA / EBIT methods for assessing investment value is that, although EBITDA and EBIT would have to be calculated specifically for the investment at the centre of the dispute, the multiplication factors are published on a regular basis by various economic bodies, and are therefore easily accessible for the purposes of valuation on the occasion of investment disputes.⁶¹⁵ Also, as both EBITDA and EBIT are reflecting the earnings of the investment, the results obtained following the application of such methods capture, in an indirect manner, the going concerns' future earning potential.

Notwithstanding the above matters which clearly indicate that the market based approach may be successfully used for the valuation of going concerns, a successful valuation of a going concern under the market based approach would be nonetheless subject to the identification of a market for the assessed investment and of appropriate comparables. In this respect, it is relevant that the market based methods generally cannot be used when a market for the going concern investment subject to valuation does not exist. For example, in cases when the stock of the company at the centre of the dispute and which is to be valued (or of comparable companies), although publicly listed, is not traded due to lack of interest from potential buyers, the market based methods may only rarely be used, on the basis of previous transactions, with the application of a discount for lack of marketability.⁶¹⁶ In such cases

⁶¹⁵ Marboe, *supra* note 9, at 203.

⁶¹⁶ Kantor, *supra* note 11, at 259.

however, in order to overcome the difficulties related to the application of market based methods to going concerns, the asset or income based methods may be used instead (in the latter case, provided that the data regarding the past income generated by the investment offers sufficient information for the calculation of the estimated future cash flow to be produced by the same investment).

Also, the actual application of several market based methods is grounded on the information provided by comparables (*e.g.*, stock prices of similar companies, transactions involving part(s) of the going concern or of companies similar to the going concern subject to valuation etc.). Unlike other types of documentary evidence used in investment valuation (*e.g.*, the track record of a going concern, which is usually available when the investment's financial documents are properly held), such comparables required for market based valuations are more difficult to identify. While this difficulty applies to all types of investments (and not only to going concerns), the comparables required for the valuation of a going concern should be similar to the investment subject to valuation in terms of business activities, assets, employees, previous period of time of operation etc.,⁶¹⁷ matter which renders cumbersome the identification of acceptable comparables, and, consequently, the application of the market based approach to going concerns.

(iii) The Income Based Approach

As detailed in chapter 4, the main value indicator of a going concern investment is directly correlated to its ability to generate revenues. As a result, the income based approach is suitable for the calculation of a going concern investment's value, because the value of future cash flows to be obtained by the respective investment during a forecasted period of time can be reflected in the valuation. From this standpoint, the income based

⁶¹⁷

The World Bank Guidelines on the Treatment of Foreign Direct Investment, art. IV, para. 6.

approach seems superior, when valuing going concerns, to the other valuation approaches, which do not assess the financial benefits which an investment would likely bring to its owners during its envisaged life duration.

Another argument in favour of the application of the income based approach to going concern investments relates to the use of the discount rate. The fact that in income based valuations the compounded future cash flows to be generated by the going concern are discounted as to reflect their value at the valuation date allows the arbitrator or valuation expert to reflect the so called ‘time value of money’ when assessing the going concern’s worth. The application of a correct discount rate also enables arbitral tribunals to avoid potential double-counting (or double recovery) matters which could result in over-compensating affected investors acting as claimants in investment arbitration.

Furthermore, the income approach appears the most advanced valuation tool from a scientific and transactional point of view. Such approach involves complex calculation mechanisms intended to remedy the deficiencies of the asset and market based approaches, and is widely applied and endorsed in the transactional practice involving acquisitions and divestitures of operating businesses qualifying as going concerns.

These aspects indicate a clear compatibility between going concern investments and the valuation thereof under the income based approach. This compatibility is illustrated by numerous cases when income based valuation methods were applied to going concerns. For instance, in *CME v. The Czech Republic*, the joint venture investment in which the investor was involved (*i.e.*, Česká Nezávislá Televizní Společnost, spol. s r.o., referred to as ČNTS) was approved by the Czech authorities (*i.e.*, the Media Council) in 1993, and begun operations in February 1994.⁶¹⁸ The investment successfully operated a newly-created broadcasting television station (named

⁶¹⁸

CME v. The Czech Republic, Final Award of 14 March 2003, para. 12.

TV Nova)⁶¹⁹ for several years, until it was negatively and seriously affected, in 1996 and 1999, as a result of the actions and omissions of the Media Council. In consideration of the investment's successful past operations, the tribunal applied an income based valuation of the investment, grounded on the DCF method. Such method has been accepted by both parties, each of which submitted its own DCF based analysis as regards the investment's overall value.⁶²⁰ Similarly, in *National Grid P.L.C. v. Argentine Republic*, the compatibility between going concern investments and their valuation under the income based approach (applied through the DCF method) was plainly expressed by the tribunal.⁶²¹

In spite of several investment disputes (such as the ones referred to above) which illustrate the compatibility between going concern investments and the income based approach, the actual application of this approach to going concerns may also raise issues. The main issues which may negatively impact the application of the income based approach to going concern investments relate to (i) the inaccurate forecast of the future cash flows, and (ii) the selection of the improper discount rate.

The first potential issue related to such application regards the fact that, under the income approach, the future cash flows are forecasted on the basis of the proven track record of earnings already generated by the going concern investment. To this end, the value of future earnings is presumed not to vary significantly when compared to past values registered during the reference period of previous operations. While deductions are used in order to assess the most likely earning scenario applicable as to the going concern's future cash flows, the accuracy related to the repeatability of past financial results in

⁶¹⁹ Ibid, paras. 12-14.

⁶²⁰ Ibid, paras. 563 *et seq.*

⁶²¹ *National Grid P.L.C. v. Argentine Republic*, UNCITRAL Arbitral Tribunal, November 3, 2008, para 276.

the future may be nonetheless arguable, as the future (upward or downward) variations of cash flow of the investment might be impossible to anticipate.

Also, the discount rate could render incorrect the final result of the income based valuation. Should the discount rate applied to the estimated future earnings fail to take into account all risk factors which may affect the investment's future earnings, the outcome of the valuation would not reflect the actual value of the going concern.

As a result of the mentioned potential issues regarding the prospective levels of cash flow and the discount rate, the application of the income based approach, in relation to the same investment at the centre of an investment dispute, but based on different levels of forecasted cash flows and/or discount rates, can lead to significant disparities in the outcomes of such valuations. For instance, in *Tecnicas Medioambientales Tecmed S.A. v. Mexico*, the calculations regarding the value of the same investment under the income approach by different experts (the experts appointed by the claimant, and respectively by the respondent) had very dissimilar results. In this case, the tribunal 'noted [...] the remarkable disparity between the estimates of the two expert witnesses', aspect which 'lead the Arbitral Tribunal to disregard such [discounted cash flow]⁶²² methodology to determine the relief to be awarded to the Claimant.'⁶²³ The disproportion between the valuations results reached by the parties' experts in this case is evident, as pursuant to the same DCF methodology, while the claimant's expert calculated an investment value of US\$ 52 million, the respondent's expert reached US\$ 2.1 million in an optimistic version, and US\$ 1.8 million in a conservative version.⁶²⁴

⁶²² Author insertion.

⁶²³ *Tecnicas Medioambientales Tecmed S.A. v. The United Mexican States*, ICSID Case No. ARB (AF)/00/2, Award of May 29, 2003, para. 186.

⁶²⁴ Ibid, para. 185.

(iv) Summary

In view of the elements presented above, it may be concluded that all valuation methods can be employed to assess the value of going concern investments.

Nevertheless, from the perspective of compatibility between the assessment of going concern investments in investment disputes and the applicable valuation approach, and subject to appropriate information being available for the purposes of carrying out the calculations, the income approach may be considered the most suitable approach for the calculation of the value of going concerns in investment arbitration. The main advantage of the income based approach relates to the fact that it reflects, in the valuation outcome, the main feature of going concern investments, namely their capacity to generate income for their owners.

The income approach is followed by the market approach, which can take into account, indirectly, the future incomes to be produced by the going concern investment, if a valuation method based on EBIT/EBITDA is applied. Finally, the asset based valuation approach may also be applied to going concern investments, although such approach disregards the income generating features of going concern investments (as well as their track record of earnings), but has the advantage of eliminating the risk of double counting which may arise in investment disputes.

5.1.1.3 Investments in Financial Distress

As mentioned under chapter 4 above, there have been investment disputes when arbitral tribunals were called to decide the value of investments in financial distress.⁶²⁵ The term ‘distressed investment(s)’ (and/or ‘investment(s) in financial distress’) is used herein to indicate enterprises which are about to enter into, or are already subject to, insolvency,

⁶²⁵ For instance, in *Sedco v. NIOC and Iran*, Award of 2 July 1987, 15 Iran-US Claims Tribunal 23, para. 267.

bankruptcy, liquidation or similar procedures originating from the fact that the respective entities are unable to pay their debts as such debts become due. The present section analyses the valuation approaches from the perspective of assessing the value of distressed investments in investment arbitration.

(i) The Asset Based Approach

In case of regular, not financially distressed investments, the asset based approach involves the assessment of the value of investments by taking into account the historic costs of assets (which are discounted by a depreciation factor in order to reflect the assets' value as of the valuation date) and liabilities acquired by the investment. For distressed investments, the asset based approach includes a special valuation method, namely the liquidation value method, which calculates the value of a business as if its operations and functioning would be terminated, and its assets would be sold piecemeal, in an orderly or forced sale. The liquidation value method is the reverse of the DCF method, as the latter takes into account the income producing features of a business as if the investment would continue to carry out its operations.

In a forced sale scenario, the assets comprising the investment are sold separately, at an auction lasting usually not more than one or two days, where the highest bidder adjudicates the assets put on sale. A forced sale has a specific marketing system, which consists in limited publicity in the media or legal journals (*e.g.*, forced sale portals, insolvency or bankruptcy publications), usually not more than strictly mandated by the insolvency or bankruptcy regulations and depending on the limited funds available to the enterprise whose assets are put on sale. An orderly sale implies more elaborated advertising and marketing, negotiations with potential buyers and a longer period during which the assets are on sale. In both forced and orderly sale cases, the potential buyer is knowledgeable of the difficult financial situation of the investment and may thus use this information to

obtain better terms (consisting mainly in a lower price) in a potential sale-purchase deal.

From this perspective, as usually financially distressed investments have limited or no prospects of continuing their operation (even after the implementation of a potential restructuring process), the asset based approach implemented through the liquidation value method is appropriate for the valuation of such investments. Nonetheless, in order to accurately establish the liquidation value, the costs associated with the financially distressed investments at the centre of investment disputes (*e.g.*, insolvency or liquidation costs) must be subtracted (along with other liabilities pertaining to the investment) from the value obtained for the potential sale of the investment's separate assets.

Although from the array of valuation methods currently available to arbitrators and valuation experts, the liquidation value method appears as the most appropriate for the valuation of distressed investments, such method also has its deficiencies. For instance, in case of investments which are at the centre of insolvency proceedings, there is a possibility for such investments to recover and become profitable,⁶²⁶ provided that the insolvency measures or reorganisation plan(s) implemented by the judicial administrator (or similar bodies managing the investment during the insolvency stage) are successful. Thus, in this particular case of investments in financial distress (*i.e.*, enterprises at the centre of insolvency proceedings), the value obtained in a liquidation sale might not accurately reflect the real value of the investments, nor the investments' highest and best use. For this reason, in investment disputes where arbitral tribunals have information indicating that the distressed investment subject to assessment would likely recover and become profitable following a restructuring process, valuation approaches

⁶²⁶

For examples of successful restructurings, please refer to European Commission (Tacis Technical Dissemination Project), *Some Examples of Successful Restructuring Experiences* (Office for Official Publications of the European Communities, Luxembourg, 1997), pp. 15-16.

alternative to the liquidation value method would need to be implemented, in order to also consider the future economic prospects of the insolvent business.

(ii) The Market Based Approach

The transactional practice of recent years indicates that the sale (and, respectively, acquisition) of distressed investments (as a whole) has become more common (for instance, in the real estate or banking⁶²⁷ sectors). As the available investment arbitration jurisprudence does not include cases when the value of distressed investments was established under the market based approach, it remains to be seen if the expansion of transactional practice involving distressed businesses would eventually trigger the application of the market based approach to distressed investments at the centre of investment disputes, as such application, although very circumstantiated, cannot be excluded.

However, the application of the market based approach for the valuation of investments in financial distress depends primarily on whether a market for the investment in financial distress, as a whole, can be identified. The existence of a market where the separate assets comprising the investment are transacted piecemeal would not suffice for the assessment of the distressed investment as a whole. Instead, the prices at which separate assets are transacted on their respective markets may become relevant under an asset based valuation scenario of the same investment, for instance when the liquidation method is applied. In addition to the existence of a market for distressed investment, the distressed investments involved in previous transactions should prove sufficient elements of similarity with the investment subject to valuation so as to render possible the use of such

⁶²⁷

As an illustrative example, as reported by Reuters, in March 2013 one of Greece's leading banks (Piraeus Bank) bought several Cyprus bank units in Greece (even though such units have been impacted by the Cypriot 2013 debt crisis). For details, please refer to <http://www.reuters.com/article/2013/03/26/piraeusbank-cyprus-idUSL5N0C10D420130326>, accessed on 14 September 2013.

investments (and data on values involved in past transactions) as benchmarks or value indicators for the particular distressed investment subject to valuation in an investment dispute.

Even when the conditions regarding the existence of a market and adequate comparable(s) are met, when aiming to assess the value of a distressed investment by using the market based approach, an additional aspect to be considered is that the value involved in a transaction with a distressed investment may not reflect the arm's length value of the investment, but a different type of value. As mentioned, a potential buyer of a distressed investment would be informed of the financial difficulties of the distressed investment for sale and, if the case, of the fact that the potential sellers of the distressed investment are under compulsion to sell. Such potential buyer would try to speculate this circumstance in order to obtain a lower price for the investment (reduced by a 'distress discount'⁶²⁸), which would result in the price obtained in a (hypothetical) transaction involving an investment in financial distress not necessarily reflecting the arm's length value of the respective investment.

Moreover, the fact that, in a hypothetical transaction, the potential seller of an investment in financial difficulty would be under compulsion to sell raises the question whether the value obtained in such transaction is, in fact, market value, or another type of value. Although no conclusive answer may be formulated, in consideration of the fact that the market based approach would not imply that the investment is disassembled and sold by pieces (as would be the case in a liquidation scenario), but instead is sold as a whole to a potential purchaser (willing to take over, at the same time, both assets and liabilities comprising the investment in financial difficulty), it could be considered that we may be in the presence of a special type of market value (which may be referred to as 'distressed market value', as it reflects the

⁶²⁸

For discounts applicable in investment disputes, please refer to Kantor, *supra* note 11, at 253 *et seq.*

regular market value of the investment subject to valuation, reduced by a distress discount).

Therefore, the potential application of the market approach to investments in financial distress depends on the cumulative assessment of three main elements: (i) the existence of a relevant market for the distressed investment as a whole, (ii) the existence of appropriate comparable investments for the valuation, and (iii) factoring in the distress discount. As each of these elements may impact the result of the valuation, the application of the market based approach in investment arbitration would be acceptable for distressed investments only when all the above elements are established with certainty.

(iii) The Income Based Approach

For most distressed investments, their prospects of continuing operations and generating revenues are virtually impossible to establish with certainty. Thus, the distressed investments subject to valuation would not qualify as going concerns. Because, on one hand, the potential application of the income based approach to investments in general is conditional upon establishing that the investment at the centre of arbitration proceedings and subject to valuation is a going concern (with a proven track record of operations and satisfactory prospects of continuing operations and generating revenues in the future) and, on the other hand, an investment in financial distress is usually unable to demonstrate future prospects, the potential application of the income based approach to investments in financial distress would be impossible in most cases.

This idea is reinforced when observing that the problematic financial standing of a distressed investment indicates that, if the respective distressed investment would continue to carry out its operations in the same manner as they have been previously conducted, the investment would likely incur supplementary debts which would deepen its pre-existing poor economic standing. Thus, if, in a hypothetical scenario, the value of an investment in

financial distress were established under the income based approach, the valuation exercise would have to compute minor levels of cash flows and revenues, paralleled by operating and capital expenditures matching or exceeding the level of the investment's cash flows and revenues during the same period of time. Consequently, in this case, the income based value of an investment in financial distress could be positive and close to zero (when the aggregated discounted cash flows are approximately at the same level with the foreseeable expenses), or even below zero (when the foreseeable expenses exceed the aggregated discounted cash flows). While such minor or negative values might be justifiable under the income based approach, they might however not reflect the highest and best use of the distressed investment,⁶²⁹ since the investment's assets, if sold in a liquidation scenario, would exceed the low or negative values obtainable under the income based approach with respect to the same investment.

Nonetheless, because distressed investments have uncertain prospects of continuing operations, and are in most cases unable to offer reliable information regarding the probable levels of cash flow to be generated, it may be concluded that, in principle, the value of such distressed investments cannot be established through the income based valuation approach. However, this deduction may not be generally applicable since there may be (and have been, especially outside the investment arbitration area⁶³⁰) exceptional cases when distressed investments recovered and turned profitable, even though they have undergone insolvency or restructuring proceedings. Thus, for distressed investments, the income based approach may be applicable, by way of exception, subject to the assessment of the potential chances of success (or failure) of restructuring, reorganization and insolvency actions carried out in relation to the distressed investment subject to valuation.

⁶²⁹ Kantor, *supra* note 11, at 252.

⁶³⁰ For examples of successful restructurings, please refer to footnote 627 above.

The existing investment arbitration case law and doctrine offer limited information regarding the indicators which would enable an arbitrator or valuation expert to reach the conclusion that a distressed investment has the potential to recover to normal profitability parameters after a restructuring (or business healing) process, and thus to allow the application of an income based method for its valuation. In any case, the chances of accurately establishing if an investment is able to successfully recover after a business restructuring process increase if the restructuring process has reached an advanced stage by the time of the investment dispute proceedings (and more data regarding the probable outcome of the restructuring process is available). At the same time, even if it can be established that the investment would recover following a restructuring process, the arbitrator or valuation expert must also further ascertain to which extent the previous track record of earnings generated by the investment prior to its restructuring might be or not still relevant for the investment's restructured activity going forward, since during the restructuring process the investment might have removed or added certain department(s) or line(s) of business, and thus its structure of earnings and cash flows prior to the restructuring may no longer correspond to the cash flows to be generated after the restructuring.

In light of the above, in most investment disputes dealing with distressed investments, the income based approach may not be applied since such distressed investments would fail to qualify as going concerns. By way of exception, the income based approach may be employed for the valuation of distressed investments when the following two cumulative conditions are met: (i) the distressed investments offer sufficient data so as to enable the arbitrator or valuation expert to conclude that such investments would recover (after a business restructuring process) and would return to the status of profitable going concerns; and (ii) the track record of cash flows already generated by the distressed investment (prior to and during the restructuring process) is sufficient and reliable for the purposes of being used as the source

of information for the assessment of future cash flows to be generated by the investment following the restructuring process.

(iv) Summary

The asset based approach, implemented through the liquidation value method, is most suitable for the assessment of the value of distressed investments at the centre of arbitral proceedings. This method does not require extensive assumptions for its implementation, but has the disadvantage of not being able to reflect the potential recovery chances of the distressed investment.

Under the income based approach, while the recovery chances of the distressed investment can be factored into the valuation, the application thereof to distressed investments involves a large number of speculative elements (*e.g.*, the assessment of the potential success or failure of business restructuring procedures applied to the distressed investment, the reliance on information regarding cash flow levels registered prior to the restructuring process in order to establish the investment's cash flows levels after a potential successful restructuring process etc.). For this reason, the application of the income based approach to distressed investments is not advisable in the absence of sufficient and clear data on these elements.

Similarly, the potential application of the market based approach to distressed investments (regarded as a whole) is in principle not recommended because in most cases the potential sellers of a distressed investment would be under the compulsion to sell, and would not be 'willing sellers' as required in a normal (arm's length) market based valuation. However, by way of exception, the application of the market based approach (implemented through the comparable sales method) to distressed investments may be acceptable if a relevant market for distressed investments (seen as a whole) exists, the appropriate comparable(s) are identified and the distress discount can be accurately applied.

5.1.2 Separate Assets

The types of investments subject to assessment in investment disputes also include separate assets, which may range from tangible assets (such as machinery, power plants, buildings, reserves of natural resources) to intangible assets (such as business opportunities, know-how, goodwill, market position). For the purposes of this section, the term ‘separate assets’ indicates assets of significance in the investment context which, following actions of the host state, are expropriated, damaged, or made useless or unable to serve the purposes initially ascribed to them, regardless if the investment to which the assets belong formally continues or not its existence.

When a particular asset (such as a power plant or an oil field) represents the basis for the core business activities of an investment at the centre of arbitration, the state’s interference with such asset may even lead to the investment’s overall failure. Thus, the valuation of a separate asset in the context of investment arbitration must consider both the intrinsic value of the asset, as well as the asset’s value in the context of the investment in which such asset is an instrumental part. In consideration of these matters, the below analyse which valuation approaches may be used for the valuation of separate assets in the context of investment disputes.

(i) The Asset Based Approach

The asset based approach can assess the value of a separate asset based on the historic costs incurred by the investor for the acquisition thereof (under the invested amounts method), or by taking into account the financial amounts required to replace the asset subject to valuation with a similar product (under the replacement value method). Likewise, the value under which separate assets are recorded in the accounting records of the investments may be used as a starting point for valuation, with the subsequent application of depreciation or depletion factors (pursuant to the book value method).

In spite of the clear compatibility between the asset based approach and the assessment of individual assets in investment arbitration, the actual

application of asset based valuation methods to separate assets is also influenced by the condition of the investment to which the separate asset under valuation belongs. In the particular case of valuing separate assets comprised in investments in financial difficulties, the liquidation method may be more suitable in comparison with the other asset based methods, as the liquidation method considers the actual circumstances in which the separate assets may be disposed of (*i.e.*, in a forced or orderly sale of assets potentially triggered by the investment's problematic financial standing).

Furthermore, there are also types of separate assets (such as certain intangible assets) to which neither of the asset based methods would apply. In this respect, the value of intangibles such as goodwill or market position associated with an investment (which may contribute significantly to the success thereof) cannot be assessed under the current asset based valuation methods. This is a consequence of the fact that goodwill and market position, although viewed as intangible assets, have specific features which trigger important consequences as regards valuation. Firstly, goodwill and market position are not acquired by the investors at specific, definite costs (*e.g.*, consumer preference towards a provider of goods or services cannot be bought against a fee), but are the outcome of synergistic aspects developed in time, such as quality of goods and services provided, responsiveness to clients' requests, reputation, business acumen etc. Consequently, the invested amounts method may not be used to assess the value of such intangible assets. Secondly, goodwill or market position may not be replaced with similar resources simply by incurring new expenses. Thus, the replacement value may not be involved for the valuation thereof. Thirdly, goodwill or market position are not registered in the accounting documents of the investment to which they relate, matter which renders impossible the application of the book value methods for the assessment of such assets. Finally, goodwill or market position may not be sold or, respectively bought in a liquidation scenario, and consequently the assessment of such intangibles by way of a liquidation method grounded on financial results to be

potentially obtained as a result of a forced or orderly sale would be impossible.

(ii) The Market Based Approach

Under the market based approach, the value of separate assets can be established by reference to the values of previous transactions involving separate assets similar to the ones subject to valuation.

In cases when the separate assets which may require valuation are not listed and traded on the stock exchange, the valuation based on stock market prices is normally inapplicable. However, when parts of the separate asset subject to assessment are traded directly, on a public market, the market based approach could prove acceptable for the valuation of such separate assets in the course of investment disputes. This is due to the fact that, when valuing natural resources (such as oil reserves, mines of precious metals, timber exploitations, coffee plantations etc.), the prices for which such resources are bought and sold on the commodities markets can be used for establishing the overall value of the investment comprised of such assets. For instance, the value of a metal reserve from a mining facility may be assessed starting from the estimated quantity of raw metal to be obtained from the facility, multiplied by the price at which the respective metal is traded on reputable commodity exchanges. In such a case, an arbitral tribunal may take into account either the prices of the relevant commodity as of the valuation date, or the average prices of the commodity during a past reference period, as such prices are made available publicly by the main commodity exchanges.⁶³¹

⁶³¹ For ease of reference, in the USA, the main commodity exchanges are Chicago Board of Trade, Chicago Mercantile Exchange, New York Board of Trade, New York Mercantile Exchange, Kansas City Board of Trade. Worldwide, the main commodity exchanges are the London Metal Exchange, European Energy Exchange (Germany), Natural Gas Exchange (Canada), Tokyo Commodity Exchange.

In case of assets for which no public markets exist, but nevertheless other separate assets similar to the ones subject to valuation have been sold and purchased in transactions between private parties, it is more cumbersome for arbitral tribunals to identify the precise prices at which such comparable assets were sold and purchased. Data regarding historical prices involved in private transactions are usually not openly accessible because in most cases no public directories of private transactions involving separate assets exist. This difficulty is also doubled by the fact that the appropriate transactions involving assets similar to those subject to arbitration proceedings and valuation may not be easily identifiable at all, because the separate assets which may be found at the centre of investment disputes can be designed and built specifically to suit the investor's needs in a particular and specific context.

At the same time, when no market (public or private) exists for separate assets at the centre of investment disputes (*e.g.*, in case of innovative power plants, specifically designed and built production facilities or equipment), the market based approach is clearly unable to offer the valuation means for the assessment of such assets.

(iii) The Income Based Approach

The possibility of effectively employing the income based approach for the assessment of a separate asset at the centre of an investment dispute is correlated primarily with the qualification of the respective asset as a going concern. Subject to the asset under valuation being regarded as a going concern, the additional conditions to be met in order to allow an income based valuation of the asset would relate to its proven track record of earnings, as well as the legitimate ability to generate cash flows in the future.

With respect to the potential qualification of an asset as a going concern, it must be noted that a going concern is typically comprised of a business or an enterprise. For instance, the Governing Council of the United Nations

Compensation Commission refers to the concept of going concern as to an operating business: ‘the business affected was a going concern, *i.e.* it had the capacity to continue to operate and generate income in the future’.⁶³² Similarly, pursuant to the World Bank Guidelines, the concept of ‘going concern’ refers to ‘an enterprise consisting of income-producing assets’.⁶³³ The World Bank Guidelines therefore clarify the relationship between the concept of ‘asset’ and the one of ‘going concern’: while a going concern comprises a multitude of assets, a separate asset may not be regarded as a going concern since the separate asset would lack the ability to generate revenues unless associated with other assets, business endeavours, financial investments, employment relationships, agreements with suppliers and customers, marketing activities, expenses etc.

In view of the above ideas, it must be admitted that a separate asset cannot be itself considered a going concern, and thus its value may not be accurately appraised directly under the income based approach.

Nonetheless, the income based approach may be used indirectly for the calculation of a separate asset’s value within the overall value of an investment. This particular form of indirect assessment might be carried out when two different scenarios are compared. The first scenario involves the assessment, pursuant to the income based approach, of the value of the complete investment (including the separate asset subject to valuation). The results obtained following this assessment represent the ‘base case’ for the valuation. The second scenario involves the assessment, also under the income based approach, of the value of the same investment as if the asset subject to valuation would no longer be part of the investment. The results

⁶³² Decision taken by the Governing Council of the United Nations Compensation Commission during the resumed Fourth Session, at the 23rd meeting held on 6th March 1992 in Geneva, para. 16, available at http://www.uncc.ch/decision/dec_09.pdf, accessed on 12 June 2012.

⁶³³ The World Bank Guidelines on the Treatment of Foreign Direct Investment, art. IV, para. 6.

obtained following such second assessment represent the ‘but for’ case.⁶³⁴ In the base case, the investment’s value is assessed considering the cash flows to be generated by the complete investment, while in the ‘but for’ case the value of the investment less the separate asset is assessed based on the cash flows pertaining to such portion of the investment. The difference between the value of the complete investment (on one hand) and the value of the investment less the separate asset (on the other) would indicate the cash flow generating capacities of the separate asset, and as a result the value thereof under the income based approach.

The possibility of using the income based approach in this indirect manner has its downsides, which relate to the fact that the synergistic value pertaining to the joint use of multiple assets in the context of the overall investment may not be effectively allocated to each of the assets which create synergistic value, and thus no part of such value can be apportioned to the separate asset subject to valuation in an investment dispute. While the synergistic value would be entirely included in the base case, in the ‘but for’ scenario a different synergistic value would be involved (if any), because the assets and business endeavours which could have created synergistic value in the ‘but for’ case would no longer include the separate asset referred to above. Thus, for the ‘but for’ case, it is highly questionable if the amount corresponding to the synergistic value of the investment’s remaining parts may be accurately calculated and included in the income based valuation, or if no amount should be applied at all in this respect.

Furthermore, because an income based valuation of a separate asset would imply comparing two different scenarios (the base case and the ‘but for’ case) for the purposes of calculating the income generating capability of the separate asset, and as the calculations under each scenario are based on a significant number of assumptions and variables, there is a substantial risk

⁶³⁴

Valuation using the ‘but for’ case was used in *LG&E v. Argentina*; for details please refer to paras. 60-61 of the award.

that the outcome of the income based valuation would be inaccurate or speculative.

(iv) Summary

While the asset based approach is clearly suitable for the assessment of the value of separate assets value within investment arbitration proceedings, the potential application of either of the market based or income based approaches in case of such separate assets is significantly circumstantiated. The application of the market based methods to separate assets depends primarily on the existence of a relevant market (which could be identifiable especially in case of separate assets consisting of natural resources) and appropriate comparables.

As for the income based approach, a direct application of income based methods is unacceptable due to the fact that separate assets may not be regarded as going concerns. However, an indirect application of the income based valuation method (based on a base case and on a ‘but for’ case, as detailed above) can be possible provided that appropriate evidence for the assumptions involved in such valuation are identified (*e.g.*, future earnings, prospective associated expenses, life duration of the investment, discount rates).

5.1.3 Contracts

Within the extensive array of activities, rights and assets which may qualify as investments, contracts are among the most frequently used by investors for the setting up and development of their businesses in foreign countries. Contracts qualifying as investments range from public-private partnership, concession and public procurement contracts, to typical investment agreements (such as Build – Operate – Transfer and Build – Own – Operate– Transfer). Most types of investment contracts consist of regulated or administrative contracts (secured by investors with the host state or its administrative bodies, usually following public tenders and involving specific

restrictions to transfer) and private contracts (secured by investors with private persons from the host state, but sufficiently important so as to contribute to the host state's development).

As contracts relevant in investment disputes involve large economic values, there is the question whether such contracts can be simply construed as assets, in which case a separate analysis of the valuation approaches which are better suited for such types of investments would be redundant, because the aspects regarding the valuation of separate assets would apply (as detailed above). While from a broad perspective contracts can also be regarded as assets since they generate financial benefits to the investors which are parties thereto, the types of contracts encountered in investment scenarios are different in nature from regular commercial contracts, and thus surpass the condition of simple contracts or assets, by involving large expenditures, workforce, industrial processes and typical investment risks (including of a political and regulatory nature). As expressed in the legal doctrine:

It is absurd [...] to deal under the same heading [...] with an agreement between a state and an alien for the supply and purchase of a certain quantity of buttons and an agreement for the economic development of a great territory for a period of twenty years.⁶³⁵

As the execution and performance of investment contracts imply more than the mere performance of services or delivery of tangible and intangible assets, and also commitments of a different nature than those included in regular commercial contracts,⁶³⁶ investment contracts constitute a separate and distinct form of investment, and also assessed accordingly in investment arbitration proceedings.

The value of contract based investment is relevant both in investor-state arbitration dealing with breaches of investor-host state contracts (*e.g.*, when the host state does not fulfil its undertakings arising from a concession agreement), but also in other cases when state interference negatively affects the contract (*e.g.*, when the host state unilaterally

⁶³⁵ Robert Jennings, *Rules Governing Contracts between States and Foreign Nationals*, (Matthew Bender & Company, 1965), 123, 137-138.

⁶³⁶ Marboe, *supra* note 9, at 98.

and unlawfully withdraws a licence enabling an investor to carry out the operations necessary for the fulfilment of an investor-host state contract, or of an agreement secured by the investor with a private entity). In view of the above, the valuation instruments used for the assessment of contract based investment are analysed, from a comparative perspective, in the following sub-sections.

(i) The Asset Based Approach

The existence of a contract based investment is accompanied, in most cases, by the investor's specific performance aimed at executing the contract (including, among others, the commitment of specific assets and/or expenses related to the fulfilment of contractual undertakings). While the assessment of a contract's value may be influenced by the level of expenses undertaken by the investor when securing the assets and services necessary for the performance of the contract, the financial benefits to be derived from the contract and the value of the contract may not be established by assessing the level of expenses undertaken in relation to performing the contract. Some investors could make unnecessary expenses for the fulfilment of their contractual undertakings (thus incurring disproportionate costs when compared to the amounts strictly required for the performance of the contract). Other investors could fail to allocate sufficient resources for the proper performance of a contract, which would be reflected in a lower than normal level of costs incurred in relation to the performance of the contract. In other words, the value of prospective proceeds to be derived from contract based investments, and thus the overall value of the investments, is not necessarily directly correlated with the value of expenses incurred by investors for the purpose of obtaining such proceeds.

As a consequence of the above, the asset based approach may only be used to establish the value of expenses actually incurred by the investor in relation to the fulfilment of the contract based investment. However, it is unlikely that an investor would have entered into a contract in order to simply recover its

invested costs since, in most cases when developing an investment, the investor would also seek to obtain a profit which would make up for the political and commercial risks (including inflation) related to investing capital in a certain foreign country. From this perspective, the asset based approach appears to assess only partially the value of contract based investments, without being able to evaluate the profit margin(s) envisaged by the investor in correlation with the expenses incurred, nor the value of intangibles – such as goodwill and market position – pertaining to a contract based investment.

Moreover, in the particular case of investment agreements for the provision of services, which imply the involvement of a lower proportion of tangible assets within the overall investment and rely on a larger proportion of labour and know-how resources by the investor, the asset based approach is unable to indicate the overall investment value based on the value of assets involved by the investor for the performance of the contract based investment, since most of such assets would belong to the host state. This is the case of agreements for the operation of public services using assets of the host state, or investment contracts for the long term distribution of energy or natural resources through distribution networks owned by the host state etc. In these scenarios, the asset based approach is unable to establish, based on the value of the assets and costs involved by the investor, the total value of the future services to be performed during the execution of a contracts. As a result, for the reasons referred to above, the asset based approach does not represent a suitable tool for the assessment of contract based investments.

(ii) The Market Based Approach

The possibility to apply the market based approach for calculating the value of contracts qualifying as investments is limited by the fact that, in general, no market exists for such contracts. An envisaged transfer between a potential willing seller and a potential willing purchaser, of a contract

qualifying as an investment, might not be possible in the first place because, among others, the contract could be awarded by a host state exclusively to a selected investor, in consideration of such investor's experience or qualification (a so-called *intuitu personae*⁶³⁷ contract) – aspect which would dismiss any potential attempt to replace the investor. Even when the contract is not made on a personal basis, it may be subject to transfer restrictions, such as the consent of the other contracting party (*e.g., the host state or a governmental authority*), expressed by way of a legislative enactment or an administrative deed – which would render impossible an unconditional, open market sale and purchase of the contract. In this latter case, transfer restrictions may be apply as a result of being expressly included in the investment contract, or because of the existence of special provisions to this end in contract's governing law.

In consideration of such transfer restrictions, investment contracts themselves usually cannot form the subject matter of a transaction, and thus may not be assessed directly under the market based approach. However, the corporate entity used by the investor in order to enter into the contract may be subject to transfer from the investor to third parties. Thus, instead of aiming to assess, under the market based approach, the value which might be involved in a deal involving the contract as the main asset, an arbitrator might try to establish the value of a share deal involving the enterprise which is a party to the contract. Even though theoretically possible, such indirect assessment of investment contracts under the umbrella of share deals may be implemented only in cases when contracts held by the investment vehicle do not include termination provisions related to the change of control or to other shareholding changes in the corporate structure of the investment vehicle. Otherwise, there would be no guarantee that, in a potential sale-purchase

⁶³⁷

D. Houtcieff, *Contribution à l'étude de l'intuitu personae: Remarques sur la considération de la personne du créancier*, RTC 2003, n°1, p. 3.

transaction envisaged by a market based valuation, the investment contracts would be transferred together with the investment vehicle.

Consequently, given the limited compatibility between the market based approach and contracts qualifying as investments, such approach appears to have a very narrow applicability in investment disputes for the valuation of investment contracts.

(iii) The Income Based Approach

The investment arbitration practice recognises the possibility to determine the value of investments, as well as future profits, by taking into consideration the information included in a contract. As mentioned in chapter 4, in the ICSID case of *PSEG v. Turkey*, the arbitral tribunal stated that a 'self-contained and fully detailed contract can well determine a basis for the calculation for future profits'.⁶³⁸

The compatibility between income based valuations and investment scenarios based on contracts appears to be well justified, provided that the contract based investment subject to valuation includes the details necessary for the calculation of future cash flows to be generated as a result of its performance. Thus, the income based approach may be used for the valuation of contract based investments in consideration of the revenues to be generated as a result of the contracts' performance.

In this context, an important distinction regards the potential valuations of several types of contracts. In case of investment contracts involving successive performances, the income based approach is able to determine the level of future cash flows associated with such performances and subsequently, by way of applying a discount rate to the estimated cash flows, to establish the investment contract value as of the valuation date. However, in case of contracts which imply a single, one-time performance (Latin:

⁶³⁸ *PSEG v. Turkey*, Award of 19 January 2007, para. 312.

*uno icto*⁶³⁹) (e.g., the delivery of an asset doubled by the payment of such asset), the income based approach does not prove useful, since in this instance a stream of future cash flows to be assessed does not exist and the revenues are obtained all together. Nonetheless, such single performance agreements would usually not qualify as investments and would thus not be subject to assessment within investment disputes because, as noted in the investment law doctrine, in order to qualify as an investment, an activity must have, among others, a certain duration which would allow the respective activity to contribute to the host state's development.⁶⁴⁰

In light of the above, the income based approach is recommendable for the assessment of long term contracts with multiple performances which qualify as investments, since this approach considers the future revenues generated by contracts, as well as the expenses necessary to produce such revenues.

(iv) Summary

The income based approach is applicable for the assessment of contract based investments in the case of long term contracts, provided that sufficient details with respect to future cash flows may be identified by the arbitral tribunal within the contracts subject to assessment. The market based approach is unsuitable for the direct assessment of contracts' value, but may be applicable indirectly (under certain circumstances) for the purposes of assessing the value of contract based investments on the basis of the value of the corporate vehicles used for the conclusion and performance of the contracts. Likewise, the asset based approach is able to assess only the contract related expenses, but not potential profits to be generated by

⁶³⁹ Young's Latin Dictionary, Stereotype and Printed Edition, London, 1810, p. 17. Also see Sir Henry Sumner Maine, *Ancient Law, its connection with the early history of society and its relation to modern ideas* (Henry Holt and Company, 1906, republished by Liberty Fund), p. 106.

⁶⁴⁰ Professor Christoph Schreuer (supra note 418) points out that investments usually must have a certain duration:

‘it seems possible to identify certain features that are typical to most of the operations in question: the first such feature is that the projects have a certain duration. Even though some break down at an early stage, the expectation of a longer term relationship is clearly there’.

contracts, and as a result such approach is not acceptable for the valuation of contract based investments.

5.2 Second Perspective for Comparison: Type of Evidence Used to Implement the Valuation Approaches

As detailed in section 5.1 of this chapter 5, certain valuation approaches and particular methods pertaining to such approaches are more suitable than others for the assessment of different types of investments at the centre of international investment disputes. For instance, for investments qualifying as going concerns, the income based approach implemented through the DCF method could be the most appropriate if relevant information regarding past operations and future earnings are available. The abstract compatibility between a valuation approach (or method) and a particular type of investment must be however doubled, in actual investment disputes, by the existence of appropriate documentary evidence which would enable the implementation of those approaches or methods which are compatible with the investment subject to valuation.

Because the potential sources of information pertaining to an investment subject to arbitration may be decisive in the selection and application of particular valuation approaches (or methods), the current section is aimed at assessing, in the context of investment disputes where multiple sources of data are presented before arbitral tribunals, which of the existing valuation approaches (if any) may be preferable when carrying out valuations based on such sources.

This section evaluates the manner in which the existence (and administration) of certain types of information related to the investment at the centre of the arbitral dispute may impact the selection of a particular valuation approach or method to the detriment of others. Subject to such selection, the valuation exercise might be itself influenced, as well as the final value attributed to an investment and, consequently, the quantum of damages which may be awarded to the investor involved in the dispute.

While the current section is aimed at assessing the available valuation approaches from the perspective offered by different arbitration contexts in which several types of evidence are presented to arbitral tribunals, this section does not analyse matters related to the application of the rules of evidence in investment arbitration. Instead, the below analysis is based on the assumption that the different types of evidence made available by the parties to investor-state arbitrations (as referred to below) are/were correctly administered before arbitral tribunals in accordance with the applicable rules of evidence, and that, consequently, they are admissible to arbitral tribunals. In view of such assumption, the thesis does not review technical aspects regarding administration of evidence, potential challenges of certain types of evidence, admissibility and weighting of evidence, or other similar issues that may occur in investment arbitration. This is explained by the thesis' focus on valuation approaches, and does not imply that, in practice, the actual application of a valuation approach to a particular type of piece of evidence cannot be influenced, among others, by (i) the manner in which such piece of evidence was administered based on the applicable rules of evidence, and (ii) the advocacy involved to argue that a particular valuation approach should be applied for assessing the value of an investment based on a particular type of evidence. On the contrary, both such aspects can significantly impact the acceptance and weighting of evidence in investment disputes, and, as a result, the application of a particular valuation approach for the selected evidence. While the administration of evidence is mainly objective because it is governed by clear rules (such as the International Bar Association Rules on the Taking of Evidence in International Arbitration⁶⁴¹), the matters pertaining to the weighting of evidence and the advocacy involved by the parties' counsels before arbitral tribunals in connection with the available evidence are areas where subjective aspects may occur. Such subjective aspects may relate to both the parties counsels' ability to advocate the selection of the

⁶⁴¹

For details, please refer to the International Bar Association Rules on the Taking of Evidence in International Arbitration, available online at www.ibanet.org/Document/Default.aspx?DocumentUid=68336C49 (accessed on 27 July 2015).

evidence which are favourable to their clients, as well as to the discretionary powers of arbitral tribunals to assess and appreciate, sometimes with an accepted margin of error, the evidence made available by the parties. Such matters are however procedural aspects which may relate to and apply for all types of evidence available in investment disputes, and not only to quantum related evidence relevant for the assessment of the value of investments, and as a result they are not analysed in the present research.

In view of the above assumptions, the sub-sections below analyse the relations established between the valuation approaches and the main types of information involved in quantum related matters within investment disputes, namely (i) financial statements, (ii) business plans, and (iii) evidence of previous transactions.

5.2.1 Financial Statements

5.2.1.1 Overview

In investment disputes, financial statements represent one of the sources of information⁶⁴² invoked by claimants for the purposes of demonstrating the value of their investment. While some corporate entities have their financial statements drafted based on national versions of the generally accepted accounting principles (GAAP), more and more businesses, especially multinational companies, have their financial statements elaborated based on the guidelines included in the International Financial Reporting Standards (IFRS⁶⁴³) developed by the International Accounting Standards Board (IASB). In case of multinational companies, the adoption of IFRS facilitates the collection of financial data in accordance with similar principles throughout the entire group, the facile transmission and consolidation of financial data from subsidiaries, as well as the interpretation and analysis of such data in a centralised manner, thus enabling

⁶⁴² For details, Jan Williams, Susan Haka, Mark Bettner, Joseph Carcello, *Financial & Managerial Accounting* (McGraw-Hill Irwin, 2008).

⁶⁴³ <http://www.ifrs.org/Pages/default.aspx>, accessed on 9 February 2013.

the management to have an overall perspective and to take informed decisions regarding the multinational group as a whole.

A complete set of financial statements regarding profit oriented businesses (as in the case of investments which may be at the centre of arbitral disputes) includes, pursuant to the IFRS, the following documents: statements of financial position (previously known as balance sheets), statements of comprehensive income (previously known as income statements), statements of cash flows, descriptions of accounting policies, and notes to the financial statements.⁶⁴⁴ In principle, financial statements are prepared on a going concern basis (*i.e.*, as if the company for which the statements are drafted would continue its operations), save for the cases when the respective company is expected to cease its activities or enter into liquidation.⁶⁴⁵ For ease of reference, and because of their relevance for this research, the main features of each of the financial statements are concisely presented below.

- A. Statements of financial position (or balance sheets) illustrate an entity's financial situation at a certain moment in time, and for this reason they have been referred to as 'snapshot of a company's financial condition'.⁶⁴⁶ The statements of start-up companies and enterprises at an early stage of economic development are usually simple, while the statements of mature and complex businesses are more elaborated (in such latter case, complex businesses could also have separate balance sheets for their divisions). While a company's management may choose the most appropriate presentation format for its statements of financial position, the actual content thereof includes, as a minimum, information on three main aspects relevant for a

⁶⁴⁴ For further details, please refer to the IFRS pocket guide 2012, available at [http://www.pwc.com/en_GX/gx/ifrs-reporting/pdf/ifrs_pocket_guide_2012_\(2\).pdf](http://www.pwc.com/en_GX/gx/ifrs-reporting/pdf/ifrs_pocket_guide_2012_(2).pdf), p. 4 (accessed on 8 September 2013).

⁶⁴⁵ *Ibid*, p. 3 (accessed on 12 September 2013).

⁶⁴⁶ Jan Williams, Susan Haka, Mark Bettner, Joseph Carcello, *supra* note 642, at 40.

profit oriented entity, namely (i) assets, (ii) liabilities and (iii) ownership equity.⁶⁴⁷

With respect to assets, the statements of financial position may include data regarding both current assets (*e.g.*, cash, cash equivalents, cash receivables, prepaid expenses) and non-current assets (such as property, plant and equipment, investment property including real estate, intangible assets, biological assets like livestock). The subdivision of statements of financial position pertaining to liabilities includes information regarding payable amounts, provisions (*e.g.*, for the guarantees constituted by the company and judicial proceedings involving the company), financial liabilities (such as promissory notes), tax liabilities (for income tax, value added tax etc.). The ownership equity section of statements of financial position regards information related to controlling interest (including issued capital and reserves attributable to the company's owners), non-controlling (or minority) interest, and retained earnings (*i.e.*, company's earnings which have not been distributed to shareholders but have been kept in the company).⁶⁴⁸

- B. Statements of comprehensive income (also known as income statements) illustrate a company's financial performance over a period of time, in complementarity with the statements of financial position (or balance sheets) which present a company's financial situation only at a certain date.

Among the items included in statements of comprehensive income are the revenues obtained by the company during the reference period, the costs and expenses corresponding to revenues (such as finance costs, tax expenses, losses), as well as the total income obtained by the enterprise.⁶⁴⁹ The statements can have a simplified format (the so called 'single-statement

⁶⁴⁷ Mortimer Daniels, *Corporation Financial Statements* (Arno Press, 1980), pp. 13–14.

⁶⁴⁸ Jan Williams, Susan Haka, Mark Bettner, Joseph Carcello, *supra* note 642, at 40.

⁶⁴⁹ For further details, please refer to the IFRS pocket guide 2012, available at [http://www.pwc.com/en_GX/gx/ifrs-reporting/pdf/ifrs_pocket_guide_2012_\(2\).pdf](http://www.pwc.com/en_GX/gx/ifrs-reporting/pdf/ifrs_pocket_guide_2012_(2).pdf), p. 5 (accessed on 15 September 2013).

approach', which calculates the aggregate value of revenues, and deducts the expenses in order to describe the value of income), or an extensive content (the 'two-statement approach', which also includes information about gross profit, operating expenses and taxes).

- C. Statements of cash flows include information on the expected levels of inflows of cash and cash equivalents, as well as outflows of cash registered by a company during a specific timeframe.⁶⁵⁰ Statements of cash flows are used to analyse the level of a company's liquidities, the discrepancies between the amounts receivable and the amounts payable, as well as the company's ability to pay its debts as they fall due.

Pursuant to the International Accounting Standard (IAS) 7 on the Statement of Cash Flows, statements of cash flows should present distinctively cash originating from, and respectively cash spent during, several types of activities, such as operating, investing and financing activities.⁶⁵¹

- D. The other financial documents prepared as part of the financial statements in accordance with IFRS are the description of accounting policies and the notes to the financial statements. Such documents have an explanatory and organizational nature. The description of accounting policies include data on the accounting methods and basis used for the elaboration of the financial statements, while the notes may include information ancillary to those presented in the main statements, as well as general conclusions and assessments as regards the company's activity going forward.

⁶⁵⁰ Further details may be found under the International Accounting Standard 7 (IAS 7), as detailed at <http://www.ifrs.org/Documents/IAS7.pdf>, p. 1 *et seq.* (accessed on 18 September 2013).

⁶⁵¹ Ibid.

5.2.1.2 Compatibility of Financial Statements with the Application of Particular Valuation Approaches

For the purpose of assessing the compatibility between financial statements and the application of a particular valuation approach or method, it can be noted that the general term of financial statements includes several documents regarding an entity's economic standing (the statements of financial position, statements of comprehensive income, statement of cash flows), as well as documents with an explanatory and predictive nature (the description of accounting policies and the notes to the financial statements).

Each document comprised under the broader umbrella of 'financial statements' is aimed at illustrating a different financial feature of the enterprise for which the financial statements are elaborated. For this reason, it would be unfeasible to establish a correlation between the existence of financial statements (in a complete set) and the application of a particular valuation approach or method. However, if each document comprising the set of financial statements is taken into account individually, the features of such separate document may indicate the compatibility with particular valuation approaches or methods – as detailed below.

- A. In case of statements of financial position (or balance sheets), the fact that these documents present an entity's financial situation at a certain moment in time by reference to the values of assets and liabilities represents a factor which would render such statements suitable primarily for the application of the asset based approach. Because under the asset based approach the overall value of the investment at a particular date is established starting from the value of the investment's constituent assets, less the value of the liabilities, the statements of financial position can be used mainly for the purposes of calculating the investment's value under the asset based approach.

In subsidiary, the statements of financial position (or balance sheets) offer information on the overall state of the investment, as they indicate the level of liabilities and the funds available for the payment of such liabilities. Statements of financial position clearly show if there are discrepancies

between the level of liabilities (on one hand) and the level of assets (on the other hand) in case of the investment subject to valuation. When the level of liquid assets is higher than the level of liabilities, the investment would generally qualify as a going concern (provided however that it has a sufficient history of operations, of minimum two or three years), while a negative discrepancy between the two could be regarded as an indicator that the investment is in financial difficulties, aspect which would trigger the potential qualification of the investment as an entity in financial distress. For this reason, the information comprised in statements of financial position may also impact the selection of the suitable valuation method (such as the DCF method in case of going concerns, or the liquidation value method for investments in financial distress). It should be noted however that the statements of financial position reflect the situation of the investment at a certain moment in time, and thus the data included therein should not be extrapolated to any periods of time prior or subsequent to the date of the statement. For the same reason, the statements of financial position only appear to have a limited applicability for the purposes of assessing the future income to be generated by an investment.

One of the investment disputes where the information comprised in balance sheets (or statements of financial position) was deemed relevant by the arbitral tribunal is *Saluka Investments BV v. The Czech Republic*. The tribunal referred to several operations registered in the balance sheets of one of the major Czech banks (Investiční a Poštovní banka a.s. – IPB) in which the claimant (Saluka) became majority shareholder following a privatization process carried out by the Czech state. The claimant was at its turn a subsidiary of an important Japanese investment banking conglomerate, the Nomura group. In its partial award, the tribunal recognised the level of investment made by the claimant's affiliate Nomura Europe by reference to IPB's balance sheet which recorded a significant increase of approx. US\$348 million. In its award, the tribunal stated as follows:

62. On 8 March 1998 Nomura Europe signed a Share Purchase Agreement with the NPF for the purchase of its approximately 36% holding of 20,620,083 IPB shares for about CZK 3 billion. The Agreement contemplated that Nomura Europe could transfer its shares to any special purpose company, trust, foundation, Anstalt or other entity, and provided also for a capital increase in IPB by a subscription of 60,000,000 further shares at CZK 100 per share, and for Nomura to reasonably endeavour to procure the underwriting of CZK 6,000,000 of subordinated debt. The total strengthening of IPB's balance sheet was thus some CZK 12 billion (about US\$348 million). [...] Nomura Europe subscribed to all of those shares, at CZK 100 per share.⁶⁵²

In the above case, the tribunal stated that the issues regarding quantum were to be assessed in the second part of the arbitration (for which tribunal retained jurisdiction)⁶⁵³, which however did not take place. As a result, it can be presumed that, since the tribunal referred to the amounts which indicated a strengthening of IPB's balance sheet, such amounts would have also been used by the tribunal for the purposes of the final valuation of the investment at the centre of the dispute.

- B. As regards statements of comprehensive income (also known as income statements), the fact that such documents present the income registered by an investment during a specific period of time implies that they may be used primarily from an income approach perspective. Based on the income statements, the level of past cash flows generated by the investment during the reference period may be obtained. In conjunction with other evidence demonstrating the investment's prospects of continuing activities, the data regarding past income and cash flows may be used to assess the future cash flows to be produced by the investment during its estimated lifespan. While income statements may lay the basis for an income based assessment of the investment's value, in order to be successfully used under the income based approach such documents must also be accompanied by information on the

⁶⁵² *Saluka Investments BV (The Netherlands) v. The Czech Republic*, Partial Award, Arbitration under the UNCITRAL Arbitration Rules 1976, 17 March 2006, para. 62.

⁶⁵³ *Ibid*, para. 511.

investment's future generating prospects, estimated lifespan and discount rate applicable to the envisaged stream of cash flows.

A clarifying example regarding the use of income statements when establishing the future income to be generated by an investment may be found in *Patrick H. Mitchell v. Congo*. In this case, the tribunal determined the past income obtained by the investment during several years of operations on the basis of income statements, then decided that the average past income represents a reasonable basis for calculating future earnings. In its decision, the tribunal stated as follows:

80. On the basis of the statements of income and the billings filed as evidence of such income, the Tribunal is satisfied that the incomes referred to in these statements are related to services provided by the Claimant's firm in the DRC.

82. The income statements relating to the accounts in the USA and the RSA are supplemented by (1) the journal recording all incomes and expenses, (2) bank statements, (3) a list of payments of client fees and (4) billings to clients.

88. The analysis of the statements presented and of the information further provided by Claimant lead the Tribunal to the understanding that the effective profit was US\$ [...] for 1996, US\$ [...] for 1997 and US\$ [...] for 1998. [...].

91. Claimant contends that in order to assess the level of profitability which would have occurred in the future, the appropriate figure is determinable by averaging the three years 1996 to 1998 either by simple average or weighted average. In the Tribunal's view, such an approach is reasonable in light of the important variations in the annual results.⁶⁵⁴

Furthermore, as the statements of comprehensive income usually include data on the investment's earnings before interest and taxes, the EBITDA⁶⁵⁵ or EBIT⁶⁵⁶ methods within the market based approach can also be implemented for the purposes of establishing the value of an investment in an arbitration scenario where statements of comprehensive income are available. A

⁶⁵⁴ *Patrick H. Mitchell v. The Democratic Republic of the Congo*, ICSID Case No. ARB/99/7, Award of 9 February 2004, paras. 80, 82, 88 and 91 (translation).

⁶⁵⁵ Earnings Before Interest, Taxes, Depreciation and Amortization.

⁶⁵⁶ Earnings Before Interest and Taxes.

straightforward example of the manner in which an investment's EBIT may be identified on a statement of income is given in the economic doctrine of financial investment through the following illustration of a simplified statement of income:⁶⁵⁷

Statement of Income — Simplified Example (Figures in thousands)	
Revenue	
Sales Revenue	\$20,438
Operating Expenses	
Cost of goods sold	\$7,943
Selling, general and administrative expenses	\$8,172
Depreciation and amortization	\$960
Other expenses	\$138
Total operating expenses	\$17,213
Operating income	\$3,225
Non-operating income	\$130
Earnings before Interest and Taxes (EBIT)	\$3,355
Financial income	\$45
Income before Interest Expense (IBIE)	\$3,400
Financial expense	\$190
Earnings before income taxes	\$3,210
Income taxes	\$1,027
Net Income	\$2,183 ⁶⁵⁸

⁶⁵⁷ Zvi Bodie, Alex Kane, Alan Marcus, *Essentials of Investments* (McGraw Hill Irwin, 2004), p. 452.

⁶⁵⁸ Ibid, p. 452.

As indicated above, the EBIT level may be easily identified from the data included in statements of comprehensive income. Even in cases when income statements do not specifically include a separate calculation of EBIT, the EBIT level may be obtained through a simple two-step calculation: in the first step, the operating expenses (administrative expenses, costs of goods, depreciation, amortisation etc.) are subtracted from the revenues obtained by the investment, so as to obtain the operating income. In a second step, the non-operating income is added to the operating income so as to obtain the value of EBIT. Similarly, EBITDA may be obtained by further adding to the equation the values pertaining to depreciation and amortization.

In spite of the above possibility, the existing practice of arbitral tribunals does not specifically refer to the option of using statements of comprehensive income for the purposes of establishing or calculating EBIT / EBITDA, and thereafter the overall value of an investment involved in arbitration proceedings. Potential explanations of this matter relate to the fact that the documentary sources of information regarding EBIT / EBITDA are not always precisely indicated by arbitral tribunals in awards, or to the fact that tribunals rely on data already processed by valuation experts and do not go into details related to the extraction of EBIT / EBITDA indicators during the valuation process.

- C. The statements of cash flows include data on the expected levels of inflows of cash and cash equivalent. The presence of such data in investment arbitration proceedings is relevant in connection with the application of the income approach for the valuation of investments, especially when the statements of comprehensive income pertaining to the investment subject to valuation are also available. By contrast, as the information presented in statements of cash flows does not reflect the value of the investment's assets, nor the value which may likely be obtained in a transaction on the open market for the sale of the investment or parts thereof, the existence of

statements of cash flow does not directly favour the application of the asset based and market based approaches to valuation.

For the same reasons presented in case of statements of comprehensive income, in subsidiary, the EBITDA / EBIT methods within the market based approach can also be used for the purposes of establishing the value of investments in investment disputes when statements of cash flows are presented as evidence, as such statements also include information on the investment's earnings.

5.2.1.3 Summary

In consideration of the fact that financial statements comprise a multiple set of documents, each of whom has its distinct scope and features, no particular valuation method may be considered the most suitable to be applied for the purposes of establishing the value of investments in arbitral disputes when all types of financial statements are presented as evidence. Nonetheless, multiple valuation approaches may be considered suitable, depending on the type of financial statements prepared for the investment at the centre of arbitration, as follows: (i) in case of statements of financial position (or balance sheets), primarily the asset based approach; and (ii) in case of statements of comprehensive income (also known as income statements) and statements of cash flows, primarily the income based approach and, subsequently, the EBIT / EBITDA based valuation methods within the market based approach.

The multitude of valuation approaches compatible with the assessment of the value of investments based on financial statements raises however the question regarding which valuation approach or method, or which combination of approaches or methods, should be used in investment arbitration proceedings when a complete set of financial statements is brought before the arbitral tribunal. In such cases, the presence of distinct types of statements which trigger the application of several valuation approaches (such as the income based and the asset based approaches) implies that all recommendable approaches should be used. The results reached following the application of multiple approaches to financial statements would need to be, at a later stage, assessed and

selected by the arbitral tribunal in view of the type of investment which is subject to valuation in the dispute, until the final value of the investment is obtained.

5.2.2 Business Plans

5.2.2.1 Overview

Business plans are projections made by or for investors with respect to the forecasted expenses, revenues and profits to be registered by their investments, as well as the planned actions required for achieving such targets.⁶⁵⁹ Business plans may be developed internally by the investor's personnel (in which case a certain degree of subjectivity may not be excluded), or by specialized consultancy firms not connected with the investor.

Business plans reflect the estimated future economic performance of the investment, during a foreseeable period of time, within a specific trade environment. In most cases they are based on information regarding the strategy of the investment, market trends, consumer preferences, demand for goods and services, existence or inexistence of competitors, applicable legal environment, evolution of prices and cost of labour etc. Business plans do not have a standard content, and their substance may differ in relation to the purpose of each business plan and the user or recipient thereof. A long-term business plan drafted in order to substantiate an investment's application for financing may differ significantly from a short-term business plan produced for the purposes of obtaining corporate approvals from the management with respect to the development strategy to be implemented by the same investment. Additional details regarding business plans are included in section 4.1.2.2.(iii) of chapter 4.

⁶⁵⁹ Business plans have been referred to, among others, in *CME Czech Republic B.V. v. Czech Republic*, ICSID Final Award, 14 March 2003, para. 138; *S.D. Myers, Inc. v. Canada*, Second Partial Award of 21 October 2002, para. 113; *Railroad Development Corporation v. Republic of Guatemala*, ICSID Case no. ARB/07/23, Award of 29 June 2012, para. 138.

5.2.2.2 Compatibility of Business Plans with the Application of Particular Valuation Approaches

Considering the information included in business plans, it may be affirmed that, in investment arbitration, business plans can be used for the purposes of arguing that an investor has legitimate expectations in implementing its investment in the host country, as well as for assessing the probable level of cash flows to be generated by the investment.

With respect to the first purpose of business plans (i.e., arguing the existence of the investor's legitimate expectations), the investment arbitration practice upholds the idea that, in conjunction with other data presented before investment tribunals, business plans may be acceptable as evidence that investments to which such plans pertain have legitimate interests of continuing their operations in the host country.⁶⁶⁰ However, the concepts of business plan and legitimate expectation must not be confused, since the first regards the expected economic benefits to be produced by an investment, while the second relates to the expected treatment (including protection) that a foreign investor should have reasonably enjoyed from the host state in relation to its activities. The fact that an investor elaborates business plans concerning the development of an investment in a foreign country does necessarily trigger the conclusion that such investor may also automatically invoke legitimate interests in actually pursuing its investment, or that such interests must benefit from a particular protection or special treatment from the host state. As a result of such distinction, in a scenario when a host state negatively interferes with a foreign investment, it is questionable if the investor's pre-existing business plans might be used by the affected investor to substantiate a claim (e.g., a claim based on the breach of the Fair and Equitable Treatment standard by the host state) solely because the investor had already developed business plans. Conversely, pre-existent business plans could be invoked by investors before arbitral tribunals in order to substantiate monetary claims for lost profits in case the host state obstructs the investor's actions of pursuing

⁶⁶⁰

In this respect, a relevant case is *Joseph Charles Lemire v. Ukraine*, ICSID Case No. ARB/06/18, Award of 28 March 2011, paras. 71 and 72.

and implementing its legitimate interests, if such legitimate interests are proved through the existence of various types of other evidence, in addition to business plans.

*With respect to the second purpose of business plans in investment disputes (i.e., to indicate future cash flows), such documents are regarded as reliable evidence for the assessment of future cash flows to be generated by investments, and consequently for the calculation of the overall value of investments under the income based approach. A relevant dispute regarding the correlation between the existence of a business plan for the investment at the centre of the dispute, and the application of an income based valuation method (namely, the DCF method), is *ADC v. Hungary*. In this case, the arbitral tribunal stated as follows:*

506. One of the Respondent's main criticisms concerns LECG's reliance on the 2002 Business Plan of the Project Company (subject to minor adjustments) as a basis for the DCF calculations [...], because it would not provide a reliable basis on which to base projections as to the future performance of the Project Company for the purposes of assessing damages.

507. The Tribunal disagrees since the 2002 Business Plan was approved by ATAA in a letter of December 11, 2001, a few days before the Decree was issued that led to the expropriation [...]. The 2002 Business Plan, therefore, constitutes the best evidence before the Tribunal of the expectations of the parties at the time of expropriation for the expected stream of cash flows.⁶⁶¹

The mentioned award outlines the relationship between business plans and the assessment of the investments' value under the income based valuation approach. The fact that the 2002 Business Plan was regarded by the arbitral tribunal as the 'best evidence' of the expected cash flows to be generated by the investment is a clear indication that business plans may be amongst the most relevant evidence for the level of future cash flows to be produced by investments.

Nonetheless, since the investment at the centre of the abovementioned arbitration was an operating entity, with a proven track record of operations and earnings (*i.e.*, a going concern), the tribunal has not analysed the distinction between business plans for going concerns and business plans of start-ups, since such distinction would have been

⁶⁶¹ *ADC v. Hungary*, paras. 506-507.

irrelevant in the dispute. Thus, the statement made by the arbitral tribunal cannot be viewed as a universal indication that business plans – in general – are the best possible evidence for the assessment of all types of investments’ expected cash flows and therefore the investments’ overall value (regardless of the type of investment, such as going concerns, start-ups, distressed investments etc.).

When the distinction between business plans for going concerns investments and business plans for start-up investments is also factored in the assessment of the relationship between business plans and the income based valuation approach, a nuanced conclusion can be reached. While business plans for going concerns are substantiated by past performance, proven financial results and historic market indicators, the business plans for start-ups cannot rely on such past performance and thus involve a higher degree of risk of being speculative or subjective. Additionally, business plans for start-ups involve a larger number of assumptions for the start-ups’ activity when compared to business plans for established entities with a significant track record of operations and earnings. Depending on the assumptions selected for business plans of start-ups, a significant bias element may influence the assessment of the envisaged performance of such entities which have just begun operation. Thus, a more accurate conclusion is that business plans elaborated for investments qualifying as going concerns (based on the investments’ history of earnings and economic performance) are appropriate evidence for the income based valuation of such investments, while the business plans drafted for start-ups may not represent a source with a similar degree of reliability or objectivity in investment arbitration.

This point may be further detailed in consideration of the fact that business plans can be elaborated by independent professionals, as well as by the investor itself, or through its personnel. While business plans issued internally by the investor may be subjective or over-optimistic (as they might rely more on favourable assumptions regarding the investment’s activity going forward), the business plans issued by independent third parties generally constitute impartial evidence for the income based assessment of future cash flows to be generated by an investment, and the investment’s overall value. As a result, from the possible types of business plans which may be presented by the

disputing parties in investment arbitration, the business plans elaborated by independent professionals in relation to investments qualifying as going concerns constitute appropriate evidence for the income based assessment of expected cash flows to be produced by such investments under the income based approach.

While the existence of business plans drafted by independent professionals for going concern investments clearly favours the application of the income based approach in investment arbitration (as explained above), no similar correlation may be established between existing business plans and the asset and market based valuation approaches. In this respect, the possibility to apply, in an investment dispute, the asset based approach would be generally dismissible when business plans are made available by the investor, because the asset based approach is aimed at establishing the value of investments in consideration of past expenses incurred by the investor while developing its investment, whereas business plans regard future actions to be implemented for the purposes of reaching financial targets. As a result, business plans do not offer sufficient details regarding past expenses (even when they mention the material capabilities which the investment may employ in order to reach its targets) so as to ensure an accurate application of the asset based approach. Similarly, the market based approach (that which calculates the value of investments based on past transactions involving similar businesses or parts thereof) does not find an appropriate source of information in business plans, as such plans include the envisaged future actions to be carried out by investments for the purposes of reaching financial targets, and not aspects relevant for the potential sale of investments.

5.2.2.3 Summary

The income based approach is the preferred valuation tool when business plans are presented in investment arbitration proceedings, to the detriment of the market and asset based approaches. However, the existence of business plans (in general) does not automatically trigger the acceptability of income based methods. On the contrary, business plans may be acceptable only provided that other conditions for the application of the income based methods (*e.g.*, DCF or CCF) are also met, such as the condition

referring to the fact that the investment subject to valuation must also qualify as a going concern in order to allow the application of an income based valuation. The existence of business plans for an investment, paralleled by an insufficient track record of successful past operations in relation to the same investment would render such business plans speculative and therefore unacceptable in investment disputes.

5.2.3 Evidence of Previous Transactions

5.2.3.1 Overview

In investment arbitration, previous transactions involving the investment at the centre of a dispute (or parts thereof) have proved relevant for the purposes of assessing the overall value of the investment as of the valuation date established by the arbitral tribunal. When previous transactions involving the same investment at the centre of the dispute (or parts thereof) have not occurred, or when there is no available evidence of such previous transactions, tribunals may also refer to evidence of transactions involving investments comparable to the one subject to valuation. The similarity between the comparable businesses and the investment at the centre of the arbitral dispute renders possible the use of the economic data regarding the comparable businesses for the purposes of establishing the value of the investment subject to valuation in the dispute.

The generic term of ‘evidence of previous transactions’ used herein includes, with respect to both the investment at the centre of the arbitral dispute and the comparable investments, stock exchange prices at which the shares of listed companies are traded at a particular moment, the averages of such stock prices during a specific timeframe, sale purchase deeds regarding shares of private companies, binding offers of purchase made by third-party independent purchasers for the acquisition of businesses or parts thereof.

5.2.3.2 Compatibility between Evidence of Previous Transactions and Application of Particular Valuation Approaches

Since the evidence of similar transactions is based on market mechanisms, involves market prices and, overall, is market oriented, it can be affirmed that, in principle, evidence of previous transactions is primarily compatible with the market based

approach to valuation. The evidence of previous transactions may be however successfully used within the market based approach if such evidence pertains to transactions occurred on an arm's length basis, between independent parties which are not under compulsion to sell or buy, because otherwise the evidence would not be a reflection of the market value (but of a special value). In this respect, it is relevant that the concept of 'market value' as referred to in the IVS regards:

the estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion.⁶⁶²

Consequently, unless the market related conditions referred to above for establishing market value are met by the previous transactions from which the evidence is derived, the evidence of such transactions would be inadequate for the purposes of determining investment value under the market based approach in an investment arbitration scenario.

When evidence regarding previous transactions is available, the sales price method within the market based approach may be used to establish the value of investments. As an illustrative example in this respect, evidence regarding previous transactions and stock prices involved in such transactions have been used by the Iran-U.S. Claims Tribunal in *Khosrowshahi v. Iran*,⁶⁶³ where the claimants requested an amount of USD 8,080,742.79 plus interest for the alleged seizure and expropriation by Iran of the claimants' shareholding interests in the Alborz Investment Corporation ('Alborz'), the KBC Company and the Investment and Development Bank of Iran.⁶⁶⁴ When assessing the value of the claimants' interest in Alborz, the tribunal relied on the prices of Alborz

⁶⁶² IVS 2013, IVS Framework, para. 30, at <http://standards.ivsonline.org/mod/page/view.php?id=108> (accessed on 11 January 2015).

⁶⁶³ Faith Lita Khosrowshahi, Susanne P. Khosrowshahi, Marcene P. Khosrowshahi, Kayvan Khosrowshahi and Kamran Khosrowshahi have been considered by the arbitral tribunal as having a 'dominant and effective' U.S. nationality. For details, please refer to *Iran-U.S. Claims Tribunal Reports*, Volume 24, Edited by J.C. Adlam, Consulting Editor E. Lauterpacht (Cambridge, Grotius Publications Limited, 1991), pp. 43-44.

⁶⁶⁴ *Iran-U.S. Claims Tribunal Reports*, Volume 24, Edited by J.C. Adlam, Consulting Editor E. Lauterpacht (Cambridge, Grotius Publications Limited, 1991), p. 41.

shares on the stock exchange eight months before the expropriation.⁶⁶⁵ The tribunal pointed out that:

[The] Tribunal finds particularly relevant the evidence relating to known trading prices of Alborz shares. Since the Tribunal's valuation precedents suppose a willing buyer and seller in order to determine the full equivalent of the property taken, a contemporaneous market price is clearly the best available evidence of the value of Alborz shares.⁶⁶⁶

In the abovementioned case, the tribunal used the trading prices from previous transactions involving Alborz shares to determine the value of Alborz shares at the valuation date. Such evidence was regarded by the tribunal as 'particularly relevant' in the context of assessing the value of Alborz shares based on the 'contemporaneous market price', under the assumption of a willing buyer and a willing seller. As indicated by the award, evidence obtained from previous transactions provides conclusive information for establishing the value of investments under the market based approach to valuation.

At the same time, in consideration of the nature of evidence of previous transactions and its connection to market forces and mechanisms, it is also clear that such evidence would have a limited applicability (if any) in an asset based calculation, since the type of evidence under discussion regards prices of shares or divisions of businesses, or particular assets from such businesses. Therefore, previous transactions cannot be used directly, under the asset based approach, to calculate the overall value of investments, as such evidence does not indicate the book value, replacement value or liquidation value of investments.

In addition to the above, similar to the case of the asset based approach, the evidence of previous transactions does not provide information relevant for the purposes of establishing the value of investments under the income based approach, as the prices involved in previous transactions are not a suitable indicator of the future cash flow to be obtained by the investment, nor the investments' profitability.

⁶⁶⁵ Marboe, *supra* note 9, at 192.

⁶⁶⁶ *Iran-U.S. Claims Tribunal Reports*, Volume 30 (Cambridge, Grotius Publications Limited, 1994), p. 76, para. 47.

5.2.3.3 Summary

In investment disputes when evidence of previous transactions is presented to arbitral tribunals, the market based approach is suitable for the assessment of such evidence and for the calculation of the investments' value. However, the income based and the asset based valuation approaches are inapplicable in investment disputes where evidence of previous transactions is presented.

5.3 Third Perspective for Comparison: Types of Damages to Which Valuation Approaches May Apply

The types of damages which are recognised in several national legislations as well as at international level are the (i) loss suffered or damage actually incurred (also known as *damnum emergens*), and (ii) loss of profits (also known as *lucrum cessans*).⁶⁶⁷

One of the international legal sources which endorse both such categories of damages is represented by the International Law Commission's Draft Articles on Responsibility of States for Internationally Wrongful Acts, which state that: 'the compensation shall cover any financially assessable damage including loss of profits insofar as it is established.'⁶⁶⁸ The ILC Draft Articles reflect the general principle regarding the compensation of all actual and future damages, regardless of the origin of such damages.

Another international legal source, applicable primarily to damages occurred from contractual relationships, consists of the UNIDROIT Principles of International Commercial Contracts, which set forth that 'the aggrieved party is entitled to full compensation for harm sustained as a result of non-performance. Such harm includes both any loss which it suffered and any gain of which it was deprived, taking into account any gain to the aggrieved party resulting from its

⁶⁶⁷ For details, Ripinsky, Williams, *supra* note 10, at 106 *et seq.*

⁶⁶⁸ International Law Commission's Draft articles on Responsibility of States for Internationally Wrongful Acts, with commentaries, 2001, Article 36 (Compensation), para. 2.

avoidance of cost or harm’.⁶⁶⁹ Similarly, the United Nations Convention on Contracts for the International Sale of Goods (‘CISG’) provides that ‘damages for breach of contract by one party consist of a sum equal to the loss, including loss of profit, suffered by the other party as a consequence of the breach.’⁶⁷⁰

Considering the importance of the mentioned categories of damages, their applicability in investment disputes and thus their relationship with valuation mechanisms, the current section addresses the applicability of the valuation approaches, as well as their strengths and weaknesses, in the context of assessing *damnum emergens* and *lucrum cessans* in international investment arbitration. The analysis included in the present subsection proves useful in consideration of the fact that, in certain investment disputes, arbitral tribunals focus primarily on assessing directly the damages incurred by the investor, and not the overall value of the investment. In other words, instead of assessing the overall value of the investment prior to the negative interference from the host state, and then to assess the value of the investment reduced following the negative interference, in some cases tribunals use the valuation approaches to establish directly the value of damages. From this perspective, the current perspective for comparing the valuation approaches analyses the compatibility of the valuation approaches with the process of establishing the value of *damnum emergens* and *lucrum cessans* in international investment arbitration.

⁶⁶⁹ Art. 7.4.2. (1), UNIDROIT Principles of International Commercial Contracts (2010), available at <http://www.unidroit.org/english/principles/contracts/principles2010/integralversionprinciples2010-e.pdf>, accessed on 20 March 2013.

⁶⁷⁰ The United Nations Convention on Contracts for the International Sale of Goods (1980) (‘CISG’), Article 74, available at <http://www.cisg.law.pace.edu/cisg/text/treaty.html>. For a detailed analysis of CISG, please refer to Stefan Kröll, Loukas Mistelis, María del Pilar Perales Viscasillas, *UN Convention on Contracts for the International Sale of Goods (CISG) – Commentary* (C.H. Beck, 2011).

Similar provisions may be found in the Principles of European Contract Law (1999) (available at http://frontpage.cbs.dk/law/commission_on_european_contract_law/PECL%20engelsk/engelsk_p_artI_og_II.htm, which provide, at Article 9:501 (Right to Damages), the following:

‘1) The aggrieved party is entitled to damages for loss caused by the other party’s non-performance which is not excused under Article 8:108.

(2) The loss for which damages are recoverable includes:

- (a) non-pecuniary loss ; and
- (b) future loss which is reasonably likely to occur.’

5.3.1 Loss Suffered (*'damnum emergens'*)

In the context of investment disputes, *damnum emergens* regards the loss suffered (or actually incurred) by an investor as a result of a harmful act or omission attributable to the host state. *Damnum emergens* relates to cases when the damage has been suffered by the investor, and such damage corresponds to an actual, already incurred loss. For this reason, in investment arbitration, the concepts of *damnum emergens* and 'loss suffered'⁶⁷¹ are used interchangeably.

Damnum emergens can include the costs made by the investor for the purposes of setting-up and developing its investment, and which the investor can no longer benefit from as a result of the host state's acts. *Damnum emergens* is used, with this meaning, in several arbitration cases. For instance, in the annulment proceedings in the case of *MTD Equity Sdn Bhd. & MTD Chile v. Chile*, the tribunal held that MTD requested 'all damages to which it may be entitled under applicable law, including, without limitation, (a) all *damnum emergens* suffered by MTD as a consequence of the Respondent's breach of the Investment Contracts and the Treaty, including the amounts invested under the Investment Contracts and all costs and expenses incurred by MTD in its efforts to carry out the Project [...].'⁶⁷²

In certain scenarios, *damnum emergens* is also construed as including the costs incurred by an investor in relation to its pre-investment actions such as the participation to a tender, if the investor's envisaged participation is denied by the host state in breach of the applicable standard of fair and equitable treatment applicable to the investor. This subject was raised in the case of *Lemire v. Ukraine*, where the arbitral tribunal, with the vote of the majority of its members, recognized the claimant's rights to damages included *lucrum cessans*, while arbitrator Dr. Jürgen Voss expressed the idea that the

⁶⁷¹ Ripinsky, Williams, *supra* note 10, at 198.

⁶⁷² *MTD Equity Sdn Bhd. & MTD Chile S.A. v. The Republic of Chile* (ICSID Case No. ARB/01/7) (Annulment Proceeding), Decision on Annulment, 21 March 2007, para. 20.

investor may only have a claim in relation to *damnum emergens* based on the costs incurred in relation to a tender to which the claimant participated.⁶⁷³

In view of the broad applicability of the *damnum emergens* reparation standards in investment disputes, the current section analyses which valuation approach is the most appropriate for the calculation of losses affecting an investment and corresponding to *damnum emergens*.

(i) The Asset Based Approach

Given the fact that *damnum emergens* regards losses suffered and sunk costs (and such costs correspond mainly to the money spent for the purchase of assets and services), while the asset based approach takes into account the value of assets and services, it may be affirmed that *damnum emergens* may be calculated by employing the asset based approach.

However, not all methods pertaining to the asset based approach are suitable for determining *damnum emergens*, but mainly the method based on the value of invested amounts, which is grounded on the computation of the actual costs made by the investor for the development of its investment. In addition to such method, the book value method can also be used for calculating costs incurred by the investor, and, consequently, *damnum emergens*. In such case, the main condition which would enable the application of this asset based method relates to the sunk costs being properly recorded in the accounting documents of the corporate vehicle(s) used for developing the investment.

The other main methods within the asset based approach (*i.e.*, the replacement value method and the liquidation value method) may not be adopted in view of establishing *damnum emergens*. While the replacement

⁶⁷³ In *Joseph Charles Lemire v. Ukraine*, ICSID CASE NO. ARB/06/18, the Dissenting Opinion of Arbitrator Dr. Jürgen Voss, states (at p. vii), the following: ‘European law provides only for recovery of the costs ‘incurred in relation to the tender (*damnum emergens*) but not for recovery of loss of profits (*lucrum cessans*) as awarded by the Majority’.

value method relates to the amounts potentially required, as at the valuation date, for setting-up another investment with the same features with the investment subject to valuation, the liquidation value method takes into account the amounts which may be obtained following a potential winding up procedure concerning the investment subject to valuation. Because replacement value and liquidation value methods do not focus on the costs actually incurred by the investor, such methods are unsuitable for assessing the loss actually incurred by the investor as a result of the negative interference of the host state.

(ii) The Market Based Approach

The market based approach assesses value based on financial information indicating the prices obtained in prior transactions having the same object or a similar object with the one subject to valuation. The valuation of an investment under the market based approach also reflects the value of several intangible elements which may be obtained by investors as a result of business acumen and not necessarily as a result of incurring costs (*e.g.*, the competitive position on a new market, goodwill developed as a result of professional business conduct, clientele).

Thus, while, on one hand, the market based approach assesses the valuation object based on market information, and, on the other hand, *damnum emergens* regards the damage actually suffered by an investor and the expenses actually incurred, it may be concluded that the market based approach cannot play a principal role in the calculation of *damnum emergens*.

However, the market based approach may come into play for the purposes of confirming the actual extent of *damnum emergens* in those cases when there is a doubt that the expenses incurred by the investor when developing its business have not been made in accordance with market terms. In this scenario, when the tribunals called to decide the extent of *damnum emergens* have evidence that the investor has over-paid for certain assets or services

during the process of developing its investment, it may be possible that the costs of certain assets or services comprised in the total amount pertaining to *damnum emergens* are verified by using the market based approach. Nonetheless, in such cases, the market based approach has a reduced applicability related to *damnum emergens*, and is limited to confirming the value of specific assets or services for the value of which additional market related confirmations are required.

(iii) The Income Based Approach

The valuation methods belonging to the income based approach are based on the estimated cash flows to be generated by the investment subject to valuation during its estimated life. The total envisaged cash flows are not used as such, but are reduced, using a discount rate, so as to reflect their value as of the date of the award. As the income based methods (such as the DCF, the Capitalized Cash Flow, and the Adjusted Present Value methods) do not focus on the amounts invested by the investors for the purposes of developing their affected investments, such methods are inappropriate for the purposes of establishing *damnum emergens* in investment disputes.

Unlike the market based approach (which may play, in certain cases, a secondary role related to confirming specific costs used in the calculation of *damnum emergens*), the income based approach is cash-flow related and thus has no features which would enable its use for the calculation of *damnum emergens*.

5.3.2 Loss of Profits (*lucrum cessans*)

The concept of loss of profits (or *lucrum cessans*) indicates the lost profits which an investor would have derived from its investment under normal circumstances, if a harmful act or fact attributable to the host state had not occurred. In investment disputes, the concepts of *lucrum cessans* and lost profits are sometimes used interchangeably. Lost profits are awarded by arbitral tribunals when they establish, with

certainty, that such profits would have been most probably derived by the investor if its investment had remained unaffected by the host state's interference.

The loss of profits may derive, among others, from a breach or a cancellation of contract depriving the investor of the financial proceeds arising from the respective contract, or from a legislative amendment adopted by the host state with a damaging effect for the investment. Such was the case in *Archer Daniels Midland Company v. Mexico*, where the arbitral tribunal found that the claimant was negatively affected by the host state's actions and had to be compensated for lost profits. In this case, the loss of profits resulted from a dramatic decrease of the claimant's sales following the enactment by Mexico of a new tax legislation which was unfavourable to the claimant's business.⁶⁷⁴

The tribunal noted as follows:

281. [...] compensation encompasses both the loss suffered (*damnum emergens*) and the loss of profits (*lucrum cessans*). Any direct damage is to be compensated. In addition, the second paragraph of Article 36 [of the International Law Commission's Articles on State Responsibility]⁶⁷⁵ recognizes that in certain cases compensation for loss of profits may be appropriate.

285. In the Tribunal's view, lost profits are allowable insofar as the Claimants prove that the alleged damage is not speculative or uncertain – i.e., that the profits anticipated were probable or reasonably anticipated and not merely possible.⁶⁷⁶

The above interpretation taken by arbitral tribunals with respect to the conditions of *lucrum cessans* is reinforced by the legal doctrine. Prof. James Crawford, in his commentary on art. 36 of the International Law Commission's Articles on State Responsibility, states that: 'an anticipated income stream has attained sufficient attributes to be considered a legally protected interest of sufficient certainty to be

⁶⁷⁴ *Daniels Midland Company and Tate & Lyle Ingredients Americas, INC. v. The United Mexican States*, ICSID Case No. ARB(AF)/04/05, (Additional Facility Rules), chapter Eleven of the North American Free Trade Agreement, Award of 21 November 2007, para. 287, available online at http://www.italaw.com/sites/default/files/case-documents/ita0037_0.pdf, accessed on 21 November 2012.

⁶⁷⁵ Addition of the author.

⁶⁷⁶ *Daniels Midland Company and Tate & Lyle Ingredients Americas, INC. v. The United Mexican States*, supra note 674, paras. 281, 285 and 286.

compensable. This has normally been achieved by virtue of contractual arrangements or, in some cases, a well-established history of dealings'.⁶⁷⁷

In view of the wide application of the *lucrum cessans* standard in investment disputes (and similar to the analysis made with respect to *damnum emergens*), the following subsections examine which valuation approaches are suitable for the assessment of *lucrum cessans*, as detailed below.

(i) The Asset Based Approach

Because, on one hand, *lucrum cessans* regards the profits which would have been normally derived from an investment in the absence of interference from the host state, and, on the other hand, the assessment of lost profits may not be carried out based on past registrations in the investment's financial documentation, nor on the past expenses incurred by the investor and recorded in the accounting books, the asset based approach may be deemed improper for the calculation of lost profits. Although usually there may be a connection between the level of expenses already incurred for the development of an investment, and the future profits to be generated by the respective investment, the asset based approach does not offer the necessary tools for ascertaining the value of lost profits, but instead can indicate other value parameters, such as book value, replacement value or liquidation value for the same investment.

(ii) The Market Based Approach

The market based approach is centred on the value exchanged in an actual or potential transaction in which the affected investment would be sold by a willing seller to a willing buyer. From this perspective, the market based approach cannot be involved in the calculation of *lucrum cessans*, since this approach is unable to indicate the future profits of a business.

⁶⁷⁷ James Crawford, *The International Law Commission's Articles on State Responsibility* (Cambridge University Press, 2002) at p. 228, commentary to Article 36.

This conclusion is applicable even though some methods pertaining to the market based approach establish the market value of the investment subject to valuation based on revenue indicators, such as EBITDA (*i.e.*, Earnings Before Interest, Taxes, Depreciation and Amortization) and EBIT (*i.e.*, Earnings Before Interest and Taxes). Although these revenue indicators may be used when calculating an investment's value under the market approach,⁶⁷⁸ the indicators themselves do not involve a clear calculation of the future profits to be generated by the investment in the absence of interference of the host state with the investment. Thus, the market based approach, even when implemented through the EBIT or EBITDA methods, does not offer the elements required for the calculation of the lost profits to be generated by an investment, nor of *lucrum cessans*.

(iii) The Income Based Approach

As detailed under chapter 4, the income based approach relies on an investment's past economic performance in order to assess the value of future cash flows and, respectively, profits which would likely be incurred by the same investment in the future.

One of the main arguments relevant for the application of the income based approach for establishing loss of profits relates to the requirement expressed by Prof. Crawford, namely that *lucrum cessans* must have 'sufficient certainty [in order] to be compensable'.⁶⁷⁹ As explained in chapter 4, the income based approach reflects in the valuation result only those future earnings for which, based on previous operations, there is a high degree of probability to also occur in the future, if the investment subject to assessment is managed as usual. Thus, it can be affirmed that the requirement of 'sufficient certainty' for loss of profits to be incurred by an investment is paralleled, in case of the income based approach, by a requirement of a

⁶⁷⁸ For details, please see Kantor, *supra* note 11, at 221.

⁶⁷⁹ James Crawford, *supra* note 677, at 228.

‘sufficient track record’ indicating the most probable level of profits to be incurred by the same investment. The reliance on the actual track record allows the arbitrator to establish both if the investment will, most probably, continue to generate cash flows, and the level of the envisaged profits which are lost by the investor following the host state’s actions.⁶⁸⁰

In view of the above, it can be affirmed that the income based approach (and the methods pertaining to such approach) are appropriate for determining the lost profits (*lucrum cessans*) which would have been registered by the investment in the absence of negative actions of the host state.

5.3.3 Summary

In light of the above, the asset based approach (implemented through the invested amounts and the book value methods) is the most appropriate valuation instrument for the calculation of *damnum emergens*. However, since the other methods pertaining to the asset based approach (e.g., the liquidation value method) may not be applicable for the calculation of *damnum emergens*, a perfect correlation between *damnum emergens* and the asset based methods cannot be established.

On the other hand, *lucrum cessans* can be assessed on the basis of income based valuation methods (e.g., the DCF method). The ability of such methods to estimate future revenues is however conditional upon the evidence available with respect to the investment’s track record of earnings, and the certainty that the respective earnings will continue during the investment’s estimated life duration.

⁶⁸⁰ Ripinsky, Williams, *supra* note 10, at 211.

6. CONCLUSIONS – Advantages and Disadvantages of Valuation Approaches, Mutual Superiority of Valuation Approaches, and Future Options

The analytical and comparative assessment of valuation approaches and methods as outlined in chapters 2 to 5 above indicates that (i) all valuation approaches available in investment arbitration have advantages and disadvantages; (ii) the existing valuation approaches are in a relationship of mutual superiority; and (iii) several aspects can be improved in terms of the future implementation of valuation matters in investment arbitration.

These concluding statements are detailed in the three sub-sections below: sub-section 6.1 summarises the three main advantages and disadvantages of each valuation approach; sub-section 6.2 explains why, based on the existence of both advantages and disadvantages in case of all approaches, the valuation approaches can be regarded as being in a relationship of mutual superiority; and sub-section 6.3 offers potential suggestions for the improvement of the current valuation practice in investment arbitration on the basis of the existing (imperfect) valuation instruments.

6.1 Main Advantages and Disadvantages of Valuation Approaches in Investment Arbitration

6.1.1 Advantages and Disadvantages of the Asset Based Approach in Investment Arbitration

The topics analysed in the thesis indicate that the asset based approach benefits from several advantages which recommend its application in investor-state disputes. Firstly, the asset based approach, implemented through its multiple valuation methods, may be applied in most scenarios encountered in investment arbitration. This is a result of the fact that most investments set up by foreign investors in host countries have a material, tangible component, and such tangible assets can be subject to assessment under the

asset based approach.⁶⁸¹ Thus, the asset based approach can be employed in the largest number of investment disputes to assess the value of investments at the centre of arbitral proceedings based on the value of their tangible components.

The asset based approach can be applied to investments ranging from start-up investments to operating businesses qualifying as going concerns and to financially distressed investments as long as the respective investments have a tangible component which is also reflected in accounting documents.⁶⁸² The existing investment arbitration practice indicates that, in relation to start-up investments and operating investments, the invested amounts (or sunk costs) method and the book value method (including the adjusted book value method) can be used, while for investments in financial difficulties the liquidation value method is preferable.

In addition to its versatility, another advantage of the asset based approach is that it requires tangible evidence for the purposes of assessing the value of investments, such as receipts attesting expenses, paid invoices and accounting documents.⁶⁸³ As a consequence of relying predominantly on solid evidence and less on assumptions, valuations carried out in investor-state disputes through the asset based approach have a lower degree of subjectivity and involve less speculative elements when compared to valuations made pursuant to other valuation approaches, such as the income based approach which involves to a large extent assumptions regarding the future revenues to be generated by the investment subject to valuation.

However, the abovementioned positive points are doubled by several downsides to the asset based approach. In this respect, it is noteworthy that certain intangible assets pertaining to the investment which is subject to assessment, such as goodwill, market share and client base, are either undervalued or even completely omitted under the asset based approach during the process of assessing the value of investments at the centre of

⁶⁸¹ Please refer to Chapter 2, Section 2.1.1.

⁶⁸² Chapter 2, Sections 2.2, 2.3 and 2.4, and Chapter 5, Section 5.2.1.

⁶⁸³ Chapter 5, Section 5.2.1.2.

disputes.⁶⁸⁴ Since such intangible assets are not registered in accounting documents, in most cases it is impossible for arbitrators or valuation experts to allocate a specific monetary value to them if the asset based approach is used. As a result, such types of intangibles can be completely disregarded under the asset based approach even though goodwill and market share can influence the financial benefits which investments could bring to their owners and, consequently, the overall value of investments.

Furthermore, under the asset based approach, investments are regarded more as assemblies of assets and less as income producing enterprises, and the income generating capacities of the investments subject to valuation are not factored in the valuation process. From this perspective, the research indicates that the asset based approach disregards the main purpose considered by investors when setting-up investments, namely that of obtaining revenue and generating profit.⁶⁸⁵ Thus, in cases when the investment subject to assessment is an operating entity with a proven track record of earnings and with legitimate expectations of continuing to produce revenues, the application of an asset based valuation method would ignore the main value driver considered by investors and attribute no value to the future revenues to be produced by the investment, thus leading to valuation results far below the ones obtainable under the income based approach with respect to the same investment.

Another disadvantage of the asset based approach results from the fact that not all expenses incurred by investors for the development of investments are registered in the investments' accounting books,⁶⁸⁶ as can be the case for out-of-pocket expenses or 'off-balance sheet' (OBS) commitments. Thus, valuations carried out pursuant to the asset based approach can overlook several costs which investors have actually incurred in relation to their investments but which cannot be evidenced by accounting documentation. In such cases, asset based valuations may not reflect the actual amounts

⁶⁸⁴ Chapter 2, Section 2.1.1.

⁶⁸⁵ Chapter 2, Section 2.1 and Chapter 5, Section 5.1.3.(i).

⁶⁸⁶ As regards expenses considered under the asset based approach, please refer to Chapter 2, Section 2.1.1.

spent for developing an investment at the centre of the dispute but only the lower values which can be proven by investors by way of documentary evidence.

6.1.2 Advantages and Disadvantages of the Market Based Approach in Investment Arbitration

The thesis comes to the conclusion that the primary advantage of the market based approach is that, in most cases, it uses actual and objective data from past transactions and business deals connected, directly or indirectly, to the investment subject to valuation and in relation to which the valuation experts or arbitrators have knowledge or which are publicly known in a specific market. As a result, the valuation results obtained under the market valuations approach are less subjective when compared to the income based approach, which relies more extensively on assumptions and forecasts. Such objectivity is maximised under the share prices method which is implemented based on the prices of shares of public companies,⁶⁸⁷ where share prices are publicly available to any interested person and are therefore easily verifiable.

Another positive aspect relates to the fact that, under the market based approach, the investment's value is equal to the value obtainable by the investor if it were to sell its investment to a willing buyer, at a certain date, without any compulsion to sell or to buy being involved.⁶⁸⁸ Consequently, the market based approach is better connected with the economic realities as of the valuation date, unlike the asset based approach which often relies on the historic costs incurred by the investor in the past for acquiring the assets used for the development of its investment, even though such historic costs may no longer be applicable for the purchase of the same assets as of the valuation date. In other words, the market based approach indicates the amount an investor would obtain for its investment on the open market at a certain date, not the amount it spent for its investment (which is indicated by the asset based approach), and also not the aggregated and discounted value of future revenues to be generated by the investment (which are established by the income based approach). From this standpoint, the market based

⁶⁸⁷ Chapter 3, Section 3.3.1.

⁶⁸⁸ Chapter 3, Section 3.2.

approach can be considered the most direct and intuitive valuation instrument, provided that the relevant comparable businesses and reference prices can be identified for valuation purposes.

In addition, the market based approach assesses the value of each investment seen as a whole, not as a sum of the investment's constituent parts.⁶⁸⁹ The intangible elements, such as goodwill, market position and client base, which pertain to the investment, are taken into account implicitly in a market based valuation without requiring extensive mathematical calculations to this end. The fact that the market based approach does not involve a split between tangible and intangible assets pertaining to an investment, and does not require extensive computations, makes the approach relatively simple to implement in investment arbitration cases.

The main disadvantage in the use of the market based approach in investor-state disputes is that a market for certain investments may not exist.⁶⁹⁰ Since investments at the centre of arbitral disputes are in most cases very complex enterprises and of considerable proportions (which, among others, enable investments to contribute to the host states' development), there are cases when no market for such investments can be identified because there are no willing buyers and/or sellers for such large businesses. In these cases, it is impossible to apply a market based method for the assessment of a particular investment at the centre of an investment dispute due to the inexistence of the necessary data with respect to the potential prices required for valuation. Thus, unlike the asset based approach, which to some extent can be applied to all investments with a tangible component and with their accounting documents in place, the market based approach can be applied only in situations where a market exists for the investments subject to valuation or parts thereof.

Nonetheless, even when a market exists for businesses within the same category with the investment subject to assessment in an investment dispute, another issue which may obstruct the application of market based methods in investment disputes relates to the

⁶⁸⁹ Chapter 3, Sections 3.3.1 and 3.3.2.

⁶⁹⁰ Chapter 5, Section 5.1.1.2.

existence and selection of relevant comparables (i.e. investments similar to the ones involved in the investment dispute and which have been transacted on the market).⁶⁹¹ As mentioned above, due to the complex nature of investments, in most cases it can be difficult to discover appropriate comparables. As a result, the market based approach can become inapplicable in a substantial number of investment disputes.

Finally, because the market based approach is implemented through the application of comparables or, in some cases, economic indicators (such as EBIT and EBITDA),⁶⁹² the outcome of the valuation process depends on the selection of such comparables and indicators. As a consequence, the outcome of valuations based on these types of information can be biased and inaccurate if the valuation exercise considers mainly comparables with extreme values (those with either the largest or smallest values). This is an aspect which can render the market based approach unreliable in certain investment disputes.

6.1.3 Advantages and Disadvantages of the Income Based Approach in Investment Arbitration

With regard to the income based approach to valuation, the analysis carried out in this thesis points out that its main advantage is the capacity to reflect, in valuation results, the revenue generating potential of investments. The income based approach is centred primarily on the monetary value that the investment would generate over time for its owner if it were to continue operating as usual.⁶⁹³ Unlike other valuation approaches, this approach is not centred on what the investor has spent for the purposes of developing its investment (as is the case under the asset based approach), nor the amount which would be obtained in a sale of the investment to a third party potential buyer (as is the case under the market based approach). From this perspective, the income based approach considers to the greatest extent the primary purpose envisaged by investors when setting-up and developing investments, namely to generate revenues and to obtain

⁶⁹¹ Chapter 3, Section 3.3.2.

⁶⁹² Chapter 3, Section 3.3.4.

⁶⁹³ Chapter 4, Introductory section.

profits, and not to recover their historical expenses or sell their investments, which in most cases are secondary and self-implied purposes for investors.

Another advantage is that the income based approach considers both tangible and intangible assets of the investments when assessing the overall value of investments. The income based approach calculates the value of investments at the centre of disputes on the basis of the past history of earnings proven by such investments,⁶⁹⁴ thus indirectly taking into account, among other value indicators, the goodwill, market share, clientele, know-how and other similar intangibles which can influence the value of investments because of their income generating capacity. This element differentiates the income based approach from the asset based approach, which considers only the investment's constituent assets which are registered in accounting documents and disregards the goodwill, know-how etc. which are not registered in accounting records.

Also, as a positive point, the income based approach has the ability to reflect investment risk in the overall valuation results. This is achieved by applying, during the valuation exercise, a discount rate to the estimated revenues to be generated by the investment during its future activities.⁶⁹⁵ As the discount rate reflects the foreseeable risks expected to impact the investment over its estimated lifespan (e.g., changes in market conditions, variations of prices and currency related matters), the income based approach considers, unlike other valuation approaches, the probable economic and political difficulties incumbent upon the investment subject to assessment in an investment dispute.

At the same time, the thesis identifies that the main disadvantage of the income based approach relates to the possible speculative elements and assumptions that may be inherently involved in its application. The income based approach relies on the past track record of earnings in order to forecast future revenues that might be generated by the investment subject to valuation.⁶⁹⁶ However, there is no certainty that such future revenues will actually be registered by the investment. This is because a variety of

⁶⁹⁴ Chapter 4, Section 4.1.2.

⁶⁹⁵ Chapter 4, Section 4.1.2.3.

⁶⁹⁶ Chapter 4, Section 4.1.2.2.

events which may occur during an investment's life and which cannot be predicted at the valuation date could come into play later on, such as the occurrence of new technologies or legislative restrictions. As a result, the estimated future earnings used as indicators of an investment's value are based to a great extent on suppositions and, therefore, involve a significant speculative element. Similarly, the discount rates used by the income based approach are also established by taking into account the main risk factors which are expected to influence the investment's future activity. Nonetheless, the concrete hazards which will be faced in reality by the investment during its actual lifetime, such as financial crises and accidents, cannot be predicted with complete certainty at the valuation date. Thus, the process of selecting the risks to be reflected in the discount rate as well as the actual discount rate to be applied in the income based approach can represent a subjective element, based on multiple assumptions. This is an aspect which renders valuations under the income based approach more speculative and, therefore, subject to challenge in the context of investment disputes.

Another shortcoming is the possibility that the income based approach can only be applied to cases with well-established investments with a proven track record of earnings and profitability which qualify as going concerns and which are able to provide extensive data on their past streams of cash flows in order to allow the estimation of future revenues.⁶⁹⁷ Consequently, the income based approach proves inadequate in principle for investments with a short lifespan of up to two or three years. As such, for investments which have an insufficient history of earnings, an informed estimation of their probable future revenues is usually impossible. This triggers the inapplicability of the income based approach for the purposes of assessing their overall value. This feature contrasts the income based approach with the asset and market based approaches, which in most cases are able to assess the value of start-up investments.

The application of the income based approach in investment arbitration is further circumstantiated by the fact that this approach can be successfully applied only if specific types of evidence are made available during the proceedings, such as statements

⁶⁹⁷ Chapter 4, Section 4.1.3.1.

of comprehensive income (or income statements), long term contracts and/or business plans.⁶⁹⁸ This evidence related requirement is additional to the requirement regarding the investment subject to an income based valuation qualifying in principle as a going concern. Thus, the application of the income based approach in the context of investor-state disputes is narrowed down to a rather small number of cases, unlike the asset based approach which can be applied to most investments at the centre of investment arbitration proceedings as long as such investments have a tangible asset base.

6.2 Relationship between Valuation Approaches

Despite the fact that each valuation approach comprises several valuation methods used for the implementation of valuations, the multitude of valuation approaches and methods cannot be construed as an indicator that a complete valuation instrument exists. On the contrary, the development of a large number of valuation methods points out that the pre-existent valuation approaches and methods were to a certain extent unsatisfactory and needed improvement for the purposes of attaining an accurate assessment of the value of investments (and businesses in general).⁶⁹⁹ The methods involved in the application of valuation approaches, as presented in chapters 2 to 4 of the thesis, indicate that the more recent valuation methods are aimed at filling in the gaps and deficiencies of previous methods. For instance, the adjusted book value method applicable in investor-state disputes⁷⁰⁰ may be regarded as a particular development of the book value method in which initial book values are also adjusted by reference to market values as of the valuation date in order to obtain an improved accuracy of the valuation result. In the context of investor-state disputes, such evolutions can improve valuation results and the outcome of arbitration proceedings.

⁶⁹⁸ Chapter 4, Section 4.1.2.2.

⁶⁹⁹ As no perfect valuation method was identified as of the date hereof, it is likely that new valuation methods and instruments will be elaborated, for the purpose of improving the existing valuation practice.

⁷⁰⁰ *Tza Yap Shum v. Republic of Peru*, ICSID Case No. ARB/07/6 (China/Peru BIT), Final Award on Merits from 7 July 2011, paras. 261-273. For details, please also see case report by Kenneth Juan Figueroa, available online at <http://italaw.com/documents/TzaYapShumAwardIACLSummary.pdf>, accessed on 22 September 2014.

Based on the fact that all valuation methods have advantages and disadvantages, the research demonstrates, while also confirming the initial research ideas, that, presently, no perfect or complete valuation method exists and, furthermore, that it is impossible to identify a valuation method with the potential to be successfully applied in all circumstances encountered in investment arbitration. The impossibility to consider a valuation method as appropriately applicable in all circumstances that arise in investor-state disputes is doubled by another finding of the research. This indicates that particular valuation methods – although imperfect from an investment arbitration perspective – are better suited than others to the assessment of the value of investments in the different contexts of such disputes. Chapter 5 analyses which valuation approaches and methods are more appropriate for the valuation of specific types of investments⁷⁰¹ as well as for the calculation of the value of investments based on different types of information available to arbitral tribunals⁷⁰² and/or in the context of different types of damages caused to investments by the host states' actions.⁷⁰³

The thesis comes to the conclusion that valuation approaches and methods used in investment arbitration are in a relationship of mutual superiority, as some valuation methods can assess the value of investments in circumstances where other methods prove ineffective. Simultaneously, the same valuation methods which are ineffective in certain cases can prove useful for the assessment of different investments with other features and/or if the contexts regarding the investments subject to dispute and valuation change.

As an example of the above, in chapter 5 the thesis analysed the reasons why in investment arbitration cases where tribunals are required to assess the value of an investment which qualifies as a 'going concern', the income based approach implemented through the DCF method is more effective when compared to other valuation methods under the market based and asset based approaches. On the

⁷⁰¹ Chapter 5, Section 5.1.

⁷⁰² Chapter 5, Section 5.2.

⁷⁰³ Chapter 5, Section 5.3.

other hand, when assessing the value of investments in financial distress in the context of investment arbitration proceedings, the income based approach as well as the market based approach are in principle inapplicable, and a valuation method pertaining to the asset based approach, such as the liquidation value method, would need to be applied by arbitral tribunals for investment valuation purposes. The thesis includes (predominantly in chapter 5 which makes a comparative analysis of valuation approaches used in the investment arbitration context) extensive sections which uphold the conclusion of mutual superiority of valuation approaches and methods in different investment arbitration contexts.

Moreover, due to the mutual superiority of valuation instruments, a ranking of valuation approaches was not able to be formulated. Although, among other aims, the thesis initially intended to establish an order of preference and even a ranking of valuation approaches used in investor state-disputes, the research could not identify arguments that upheld the possibility of creating such delimitation between valuation approaches and/or methods.

6.3 Future Options for Possible Improvement of Valuation Aspects in Investor-State Disputes

In the absence of a complete valuation instrument and given the mutual superiority of valuation approaches and methods, arbitral tribunals have the task of electing, on a case-by-case basis (in most instances on the basis of submissions from parties and valuation experts), the valuation tools which are acceptable in each investment dispute, by reference to the investments' specific features and the overall context of the dispute. As detailed in section 6.2 above, in essence, arbitral tribunals must operate with the imperfect valuation instruments currently available, and manage such tools to obtain accurate results. The management of valuation instruments implies the selection by arbitral tribunals of the valuation approaches and methods which demonstrate the best compatibility with the investment at the centre of the dispute as well as with the overall context created by the type of investment, the type of available evidence

or the type of damage incurred by investors. In the absence of compatibility between the valuation tools used in a particular dispute and the investment context, the valuation results, as well as the overall outcome of the arbitration proceedings, are likely to be jeopardised or distorted.

At the same time, even though arbitrators must select and/or allow the application of appropriate valuation tools during the process of ultimately deciding upon quantum issues in investment disputes, the legal documents that regulate the activities of arbitral tribunals do not include detailed rules for the selection and application of valuation instruments in investment arbitration. In view of this, the research indicates that the current valuation practice implemented in investment disputes requires improvement in several significant ways. If applied, such potential improvements would contribute to the implementation of a scientific approach to quantum related matters, to a reduction in the subjective matters incumbent in valuations, and to the improvement of predictability of valuations made in the context of investment disputes.

The potential improvement of valuation related matters in investor-state disputes could be achieved through the implementation of the following aspects:

- (a) *From a theoretical perspective:* appropriate detailed practical guidelines to be used in investor-state disputes in relation to the selection and application of valuation methods in particular contexts should be elaborated. It would be recommended that such a process be carried out by or with the involvement of the IVS or other similar valuation bodies, and with the support of professionals involved in valuation matters of investment disputes. The research indicates that such guidelines would need to explain how arbitrators should select the appropriate valuation instruments to be used for the assessment of the value of investments by reference to at least (i) the type of investment involved; (ii) the category of evidence available; and (iii) the type of damage incurred by the investment/investor (*damnum emergens* and/or

lucrum cessans) – aspects which have been identified herein as the main factors which can impact the selection of valuation methods and the outcome of valuations.⁷⁰⁴

- (b) *From a regulatory perspective:* specific rules to be applied for valuation matters in the quantum phase of investment arbitration proceedings should be enacted by relevant decision factors in order to ensure the observance by arbitral tribunals of the practical guidelines referred to above, and thus to trigger the accurate and uniform assessment of the value of investments. As such decision factors are the states which are signatory parties to the ICSID Convention⁷⁰⁵ and which in most cases are also required to pay damages to foreign investors as a result of valuations carried out during investment disputes, it can be expected that there would be a genuine interest for states to clarify and regulate the implementation of valuation matters in investment arbitration as well as to obtain predictability with regard to valuation results.

In this respect, it is relevant that the provisions of the ICSID Convention are complemented by the Regulations and Rules adopted by the Administrative Council of ICSID, which were last amended in 2006 and which are also applicable in investor-state disputes. Currently, the Regulations and Rules include ‘Administrative and Financial Regulations; Rules of Procedure for the Institution of Conciliation and Arbitration Proceedings (Institution Rules); Rules of Procedure for Conciliation Proceedings (Conciliation Rules); and Rules of Procedure for Arbitration Proceedings (Arbitration Rules)’.⁷⁰⁶ Due to the existence of such documents ancillary to the ICSID Convention, the enactment of specific valuation related rules would not

⁷⁰⁴ Chapter 5 – Introductory section.

⁷⁰⁵ Convention on the Settlement of Investment Disputes between States and Nationals of Other States. Pursuant to the Information made available by the World Bank, ‘The Convention entered into force on October 14, 1966, when it had been ratified by 20 countries. As at April 10, 2006, 143 countries have ratified the Convention to become Contracting States.’ (https://icsid.worldbank.org/ICSID/StaticFiles/basicdoc/CRR_English-final.pdf, accessed on 12 August 2014).

⁷⁰⁶ Please refer to https://icsid.worldbank.org/ICSID/StaticFiles/basicdoc/CRR_English-final.pdf, accessed on 9 December 2014.

require a cumbersome amendment to the ICSID Convention but instead could be achieved through either (i) the amendment of the ICSID Rules of Procedure for Arbitration Proceedings or (ii) the enactment, in addition to the existing Regulations and Rules, of new and specific rules of procedure for valuation matters to be applied in disputes before ICSID.⁷⁰⁷

- (c) *From an administrative perspective:* when relevant information is available, arbitral tribunals should mandatorily cross-examine, or order the cross-examination of, the investments subject to assessment in investor-state disputes by at least two different valuation methods. Such different methods should preferably be selected within two valuation approaches, in order to ensure multiple valuation perspectives over the investment subject to assessment. For instance, at least one method pertaining to the market based approach (e.g., the share prices method) and one method from the income based approach (e.g., the DCF method) should be applied for the valuation of a going concern investment. Similarly, an asset based method (e.g., the liquidation value method) and a market based method (e.g., the offerings based method) should be used to assess the value of an investment in financial difficulties.
- (d) *From a judicial perspective:* the exercise of arbitral tribunals' discretionary powers to depart from scientific valuation results in investment arbitration proceedings should be minimal. As mentioned under chapter 3, in investment arbitration practice there have been several cases when tribunals deviated from the results of valuation exercises carried out by specialised professionals and established the value of investments based on so-called 'equitable considerations',⁷⁰⁸ but without a clear scientific basis for

⁷⁰⁷ For the scenario when such prospective rules would not be observed, the affected party should have the right to request the review of the tribunals' decision on quantum aspects (provided however that, in order to avoid harassing maneuverers from parties potentially acting in bad faith, the request for review could be also accompanied by a deposit of funds which may not be reimbursed to the party filing groundless review requests).

⁷⁰⁸ Chapter 3, Section 3.4.1.2.

establishing specific values nor with an economic ground for increasing or decreasing valuation results when establishing the value of investments. As this practice lacks a scientific basis and is to a great extent subjective and grounded on the arbitrators' opinions, experience and perceptions, its incidence in investment arbitration should be minimised through the enactment of specific rules restricting the arbitral tribunal's possibility to depart from the valuation outcomes by more than a certain margin (e.g., a percentage of the valuation result) and only in specific circumstances motivated by economic grounds and/or judicial precedents. Such specific rules could also set forth the necessity for arbitral tribunals to analyse in distinct stages of arbitration proceedings (1) the matters relating to the breaches which negatively affect the investment at the centre of arbitration and (2) the issues regarding the value of the affected investment and/or the damages suffered by it. In this manner, although there may be things to be appreciated subjectively by arbitral tribunals in stage (1) referred to above, the equitable considerations which may be involved for such appreciation would not be mixed with, or go against, the technical quantum / valuation aspects to be considered in stage 2 above. Thus, through the implementation of this 2-stage process, the assessment of the value of investments would be better protected against discretionary judgments that might be made by some arbitral tribunals.

Should any or all of the above be implemented in investment arbitration, the valuation related matters could be improved in terms of predictability and consistency in application, thus leading to better results for all actors involved in investor-state disputes. The fact that the mechanisms for the settlement of investor-state disputes are relatively recent and have not yet developed extensive formulas regarding the calculation of the value of investments leaves open the possibility for future adjustments – such as the ones mentioned above – in relation to the processes and instruments involved in the assessment of the value of investments at the centre of international investor-state disputes.

7. BIBLIOGRAPHY

BOOKS, MONOGRAPHS, ARTICLES:

Abdala, Manuel, *Key Damage Compensation Issues in Oil and Gas International Arbitration Cases*, The American University International Law Review, Volume 24, No. 3, 2008;

Baker, Kent; Martin, Gerald, *Capital Structure and Corporate Financing Decisions: Theory, Evidence, and Practice*, Wiley, 2011;

Bernardini, Piero, *The Renegotiation of Investment Contracts*, ICSID Review Foreign Investment Law Journal, 1998;

Besley, Scott; Brigham, Eugene, *Principles of Finance*, 4th Edition, Cengage Learning, 2009;

Binder, Peter, *International commercial arbitration in UNCITRAL model law jurisdictions: an international comparison of the UNCITRAL model law on international commercial arbitration*, London, Sweet & Maxwell, 2000;

Bishop, R. Doak; Crawford, James; Reisman, W. Michael, *Foreign investment disputes: cases, materials, and commentary*, Kluwer Law international, 2005;

Blackman, Irving L., *Valuing the privately-held business: The Art and Science of Establishing a Company's Worth*, Rev. Ed. Chicago, Probus Publishing Company, 1992;

Black's Law Dictionary, Brian A. Garner (Editor), 8th Edition, Thompson West, 2004;

Boczek, Boleslaw Adam, *International law: a dictionary*, Scarecrow Press Inc., 2005;

Bodie, Zvi; Kane, Alex; Marcus, Alan, *Essentials of Investments*, McGraw Hill Irwin, 2004;

Bouchet, Michel Henry; Clark, Ephraim; Gros Lambert, Bertrand, 2003, *Country Risk Assessment: A Guide to Global Investment Strategy*, Wiley Finance, 2003;

Bowman, Michael, Boyle, Alan (Editors), *Environmental damage in international and comparative law: problems of definition and valuation*, Oxford University Press, 2002;

- Brakman, Steven; Garretsen, Harry, *Foreign direct investment and the multinational enterprise*, MIT Press, 2008;
- Brealey, Richard; Myers, Stewart, *Principles of Corporate Finance*, 7th Edition, McGraw-Hill, 2003;
- Brealey, Richard; Myers, Stewart, *Principles of Corporate Finance*, McGraw-Hill, 2006;
- Brigham, Eugene; Daves, Phillip, *Intermediate Financial Management*, 10th Edition, Cengage Learning, 2010;
- Brockway, Blake J., *Symposium: Into the Sunset: Bankruptcy as Scriptwriter of the Denouement of Financial Distress: Comment: Applying Federal Securities Law to chapter 11 Claim Conversions*, DePaul Business & Commercial Law Journal, 2009, 7 DePaul Bus. & Comm. L.J. 655;
- Browder, Justin L., *The 2007 Private Equity Bust: Re-Contextualizing Material Adverse Change Clauses in a Credit-Stricken Market*, University of Miami Law Review, July, 2009, 63 U. Miami L. Rev. 1151;
- Brower, Charles; Ottolenghi, Michael, *Damages in Investor-State Arbitration*, chapter in Arthur W. Rovine (editor), *Contemporary issues in international arbitration and mediation: The Fordham Papers 2007*, Martinus Nijhoff Publishers, 2008;
- Brower, Charles; Wong, Jarrod, *General Valuation Principles: The Case of Santa Elena* (2005), in *International investment law and arbitration: Leading cases from the ICSID, NAFTA, bilateral treaties and customary international law*, Todd Weiler (Editor), 2005;
- Brown, Roger, *Private real estate investment: data analysis and decision making*, Academic Press, 2005;
- Brownlie, Ian, *Principles of Public International Law*, Oxford University Press, 2003;
- Carmichael, D. R.; Graham, Lynford (Editors), *Accountants' Handbook*, 11th Edition, John Wiley & Sons, 2010;
- Catty, James, *Wiley Guide to Fair Value under IFRS*, Wiley, 2010;

- Cherian, Joy, *Investment contracts and arbitration: the World Bank Convention on the Settlement of Investment Disputes*, Leyden, 1975;
- Chen, John, *Foreign direct investment*, Macmillan Press, 2000;
- Collins, David, *ICSID Annulment Committee Appointments: Too Much Discretion to the Chairman?*, *Journal of International Arbitration*, 30(4), 2013;
- Collins, David, *The BRIC States and Outward Foreign Direct Investment*, Oxford University Press, 2013;
- Concise Oxford English Dictionary, 11th Edition, Oxford University Press, 2006;
- Crawford, James, *The International Law Commission's Articles on State Responsibility*, Cambridge University Press, 2002;
- Christiansen, Hans, *Foreign direct investment for development: maximising benefits, minimising costs*, Paris, Organisation for Economic Co-operation and Development, 2002;
- Damodaran, Aswath, *The Adjusted Present Value Approach*, available online at http://pages.stern.nyu.edu/~adamodar/New_Home_Page/valquestions/apv.htm, accessed on 17 March 2014;
- Daniels, Mortimer, *Corporation Financial Statements*, Arno Press, 1980;
- De Brabandere, Eric, *Investment Treaty Arbitration as Public International Law: Procedural Aspects and Implications*, Cambridge, 2014;
- De Maeseneire, Wouter; Keuleneer, Luc, *Valuation of companies: discounted cash flow, adjusted present value, decision tree analysis and real options*, chapter in Keuleneer, Luc; Verhoog, Willem (editors), *Recent trends in valuation: from strategy to value*, John Wiley & Sons, 2003;
- DePamphilis, Donald, *Mergers, acquisitions, and other restructuring activities*, Academic Press, 2008;
- Della Porta, Donatella; Keating, Michael (editors), *Approaches and Methodologies in the Social Sciences*, Cambridge University Press, 2008;

- Derains, Yves (Editor), *Evaluation of damages in international arbitration*, ICC, 2006;
- Di Rattalma, Marco Frigessi; Tullio Treves, *The United Nations Compensation Commission: a handbook*, Kluwer Law International, 1999;
- Dickie, R. B., *Financial Statement Analysis and Business Valuation for the Practical Lawyer*, 2nd Edition, American Bar Association, 2006;
- Dolzer, Rudolf; Schreuer, Christoph, *Principles of International Investment Law*, Oxford University Press, 2008;
- Douglas, Zachary; Pauwelyn, Joost; Vinuales, Jorge (Editors), *The Foundations of International Investment Law: Bringing Theory into Practice*, Oxford University Press, 2014;
- Dunn, Robert; Harry, Everett, *Modelling and Discounting Future Damages*, Journal of Accounting. Online issues, January 2002, available at www.aicpa.org, accessed on 10 November 2014;
- Dugan, Christopher; Wallace, Don; Rubins, Noah; Sabahi, Borzu, *Investor-State Arbitration*, Oxford University Press, 2011;
- Dyker, David, *Closing the East-West productivity gap: foreign direct investment, competitiveness, and public policy*, Imperial College Press, 2006;
- Elton, Edwin J., *Modern portfolio theory and investment analysis*, Wiley, 2007;
- Evans, Frank C.; Bishop, David M., *Valuation for M&A: building value in private companies*, Volume 1 of the Wiley Mergers and Acquisitions Library, John Wiley and Sons, 2001;
- Fabozzi, Frank; Kothari, Vinod, *Introduction to Securitization*, John Wiley & Sons, 2008;
- Fairfax, Sally; Yale, Carolyn, *Federal lands: a guide to planning, management, and state revenues*, Island Press, 1987;
- Fight, Andrew, *Cash Flow Forecasting*, Butterworth-Heinemann, 2005;

Floyd, Marcus; Allen, T., *Real Estate Principles*, Dearborn Real Estate Education, 7th Edition, 2002;

Filler, Mark; DiGabriele, James, *A Quantitative Approach to Commercial Damages: Applying Statistics to the Measurement of Lost Profits*, Wiley, 2012;

Fishman, Jay; Pratt, Shannon; Morrison, William, *Standards of Value: Theory and Applications*, John Wiley & Sons, 2007;

Fox, William, *International commercial agreements: a primer on drafting, negotiating, and resolving disputes*, 4th Edition, Kluwer Law International, 2009;

Friedland, P. D.; Wong, E., *Measuring Damages for Deprivation of Income-Producing Assets: ICSID Case Studies*, 6 ICSID Rev.-Foreign Investment Law Journal, 1991;

Gabilondo, Jose, *Leveraged Liquidity: Bear Raids and Junk Loans in the New Credit Market*, University of Iowa, Journal of Corporation Law, Winter, 2009, 34 Iowa J. Corp. L. 447;

Gaines, George; Coleman, David; Crawford, Linda, *Florida R.E. Principles, Practices, & Law*, 27th Edition, Dearborn Real Estate Education, 2003;

Gats, Tom, *Trading and valuing Internet and high tech stocks: a practitioner's guide*, Financial World Publishing, 2002;

Gaughan, Patrick, *Measuring Business Interruption Losses and Other Commercial Damages*, 2nd Edition, Wiley, 2009;

Glah, Robert K., *Modern International Law on Foreign Investment Protection and Arbitration*, Innovate Publishers, 2014;

Glenn, Donald; Burrage, Thomas; DeGrazia, Donald; Stewart, William Jr., *Family Law Services Handbook: The Role of the Financial Expert*, John Willey & Sons, 2011;

Goldenman, Grettaet. et al., *Environmental liability and privatization in Central and Eastern Europe*, Kluwer, 1994;

Gotanda, John, *Assessing Damages in International Commercial Arbitration: A Comparison with Investment Treaty Disputes*, in Investment Treaty Law: Current Issues

III 75 (A. Bjorkland, I. Laird, and S. Ripinsky, eds.), British Institute of International and Comparative Law, 2009.

Graham, John; Smart, Scott B.; Megginson, William L., *Corporate Finance: Linking Theory to What Companies Do*, 3rd Edition, Cengage Learning, 2010;

Gregoriou, Greg (Editor), *Asset allocation and international investments*, Macmillan, 2007;

Greenwald, Douglas et al., *The McGraw-Hill Dictionary of Modern Economics*, 2nd Edition, 1973

Grossman, Theodore; Livingstone, John Leslie, *The Portable MBA in Finance and Accounting*, John Wiley & Sons, 2009;

Guinchard, Serge; Montagnier, Gabriel, *The Entity of French Doctrine: Some Thoughts on the Community of French Legal Writers*, Legal Studies Journal, 1998, Volume 18, No. 4;

Haendel, D.; West, G.T.; Meadow, R.G., *Overseas Investment and Political Risk*, Philadelphia: Foreign Policy research Institute Monograph Series, No. 21, 1975;

Hardin, Laura; Milburn, Chris, *Valuation of 'Start-Up' Oil and Gas and Mining Projects*, in The Arbitration Review of the Americas 2011, available at <http://www.globalarbitrationreview.com/reviews/32/sections/114/chapters/1198/valuation-start-up-oil-gas-mining-projects/>, accessed on 6 April 2014;

Hatzius, J., *Foreign direct investment, capital formation and labour costs, evidence from Britain and Germany*, London, Centre for Economic Performance, London School of Economics and Political Science, 1997;

Haugen, Robert A., *Modern investment theory*, Prentice Hall International, 1997;

Helfert, Erich, *Financial analysis: tools and techniques: a guide for managers*, McGraw Hill, 2001;

Hitchner, James, *Financial valuation: applications and models*, 2nd Edition, John Wiley & Sons, 2006;

Hitchner, James, *Financial Valuation, Applications and Models*, 3rd Edition, John Wiley & Sons, 2011;

Hitchner, James; Mard, Michael, *Financial valuation workbook*, Wiley & Sons, 2003;

Houtcieff, D., *Contribution à l'étude de l'intuitu personae: Remarques sur la considération de la personne du créancier*, RTC 2003, no.°1;

Hulten, Charles; Wykoff, Frank, *Issues in the Measurement of Economic Depreciation*, Economic Inquiry (1996), Vol. XXXIV, No. 1 (January);

Hunt, Peter, *Structuring Mergers & Acquisitions: A Guide to Creating Shareholder Value*, Aspen Publishers, 2009;

Jensen, Herbert L., *Stock Valuation Formulas for Estate and Gift Taxes*, Trusts & Estates 117, 1938;

Kalajian, T. Vahan, *Introduction to Business Valuation Concepts for Attorneys*, Provident Valuation Professionals, 2004;

Kantor, Mark, *Valuation for arbitration: compensation standards, valuation methods and expert evidence*, Wolters Kluwer, 2008;

Kapil, Sheeba, *Financial Management*, Dorling Kindersley, 2011;

Kazazi, Mojtaba, *Burden of proof and related issues. A study on evidence before international tribunals*, Kluwer Law International, 1995;

Keeler, Theodore, *Railroads, Freight and Public Policy. Studies in the Regulation of Economic Activity*, Brooking Institution Press, 1983;

Khan, M. Y., Jain, P. K., *Management Accounting and Financial Analysis*, 2nd Edition, Tata McGraw Hill Publishing, 2007;

Kirchain, Randolph, *Engineering Economics: Comparing Financial Characteristics of Design Options*, Massachusetts Institute of Technology, Department of Materials Science & Engineering, slide 10, available at http://ocw.mit.edu/courses/materials-science-and-engineering/3-080-economic-environmental-issues-in-materials-selection-fall-2005/lecture-notes/lec_ee1.pdf, as accessed on 6 July 2011;

Kläger, Roland, *'Fair and Equitable Treatment' in International Investment Law*, Cambridge, 2013;

Koch, Robert J., *Damages for lost income*, Juta, 1984;

Kruschwitz, Lutz; Loeffler, Andreas, *Discounted Cash Flow: A Theory of the Valuation of Firms*, John Wiley & Sons, 2006;

Koller, Tim; Goedhart, Marc; Wessels, David, *Valuation: Measuring and Managing the Value of Companies*, 4th Edition, John Wiley & Sons, 2005;

Kröll, Stefan; Mistelis, Loukas; del Pilar Perales Viscasillas, María, *UN Convention on Contracts for the International Sale of Goods (CISG) – Commentary*, C.H. Beck, 2011;

Jacob, Allee, *What About Gender Roles and Equality in Genesis 1-3*, available at <https://carm.org/about-gender-roles-equality-genesis>, accessed on 10 July 2014;

Jarvela, Marja; Juhola, Sirkku (Editors), *Energy, Policy, and the Environment*, Springer Verlag New York, 2012;

Jennings, Robert, *Rules Governing Contracts between States and Foreign Nationals*, Matthew Bender & Company, 1965;

Laro, David; Pratt, Shannon, *Business valuation and taxes: procedure, law, and perspective*, John Wiley & Sons, 2005;

Lew, Julian; Mistelis, Loukas; Kröll, Stefan, *Comparative International Commercial Arbitration*, Kluwer Law International, 2003;

Loring Allen, Robert, *Irving Fisher: A Biography*, John Wiley and Sons, 1993;

Luehrman, Timothy A., *Using APV: A Better Tool for Valuing Operations*, Harvard Bus. Rev., May-June 1997;

Lundholm, Russell James, *Equity Valuation and Analysis With Eval*, McGraw-Hill, 2007;

Marboe, Irmgard, *Calculation of Compensation and Damages in International Investment Law*, Oxford University Press – Oxford International Arbitration Series, 2009;

- Marks, Susan, *Expropriation: compensation and asset valuation*, Cambridge University Press, 1989;
- McConkie, William Robert II, *Tests of Valuation Methods for Non-Public Companies*, PhD Thesis, The Florida State University, College of Business, 1995;
- McDermott, Peter, *Equitable damages*, Sydney, Butterworth, 1994;
- McLachlan, Campbell, Laurence Shore, Matthew Weiniger, *International investment arbitration: substantive principles*, Oxford, Oxford University Press, 2007;
- Megyery, Kathy; Sader, Frank, *Facilitating foreign participation in privatization*, Washington, D.C, The World Bank, 1996;
- Meitner, Matthias, *The Market Approach to Comparable Company Valuation*, Zentrum für Europäische Wirtschaftsforschung (ZEW), ZEW Economic Studies, vol. 35, Springer, 2006;
- Mistelis, Loukas (Editor), *Concise International Arbitration*, Kluwer Law International, 2003;
- Narayanan, M. P.; Nanda, Vikram, *Finance for strategic decision making: what non-financial managers need to know*, John Wiley & Sons, 2004;
- Nathan, K.V.S.K., *ICSID Convention: the law of the International Centre for Settlement of Investment Disputes*, Juris Pub., 2000;
- Newcombe, Andrew Paul, *Regulatory Expropriation, Investment Protection and International Law: When Is Government Regulation Expropriatory and When Should Compensation Be Paid?* (Master's Degree Thesis), Faculty of Law, University of Toronto, 1999 (available online at <http://italaw.com/documents/RegulatoryExpropriation.pdf>, accessed on 29 January 2015);
- Newcombe, Andrew; Paradell, Lluís, *Law and practice of investment treaties: standards of treatment*, Kluwer Law International, 2009;
- O'Brien, Geoff; Pearsall, Nicola; O'Keefe, Phil, *The Future of Energy Use*, Routledge, 2010;

Omalu, MirianKene, *NAFTA and the Energy Charter Treaty: Compliance with, Implementation and Effectiveness of International Investment Agreements*, Kluwer Law International, 1999;

Organisation for Economic Co-operation and Development, *Corporate governance of non-listed companies in emerging markets*, OECD Publishing, 2006;

Ortino, Federico, *Legal Reasoning of International Investment Tribunals: A Typology of Egregious Failures*, Journal of International Dispute Settlement 2012, 3(1);

Ortino, Federico; Warner, Hugo; Sheppard, Audley (Editors), *Investment Treaty Law: Current Issues*, British Institute of International and Comparative Law, 2005;

Ortino Federico, Liberti, Lahra; Sheppard, Audley; Warner, Hugo (Editors), *Investment treaty law: current issues II: nationality and investment treaty claims, fair and equitable treatment in investment treaty law*, British Institute of International and Comparative Law, 2008;

Parra, Antonio, *The History of ICSID*, Oxford University Press, 2012;

Petrochilos, Georgios; Noury, Silvia; Kalderimis, Daniel, *Commentary on the Convention on the Settlement of Investment Disputes between States and Nationals of Other States (Washington/ICSID Convention)*, book chapter in Loukas Mistelis (Editor), *Concise International Arbitration*, Kluwer Law International, 2003;

Phillips, John F., *Arbitration: law, practice and precedents*, Cambridge, ICSA, 1988;

Pinto, Jerald; Henry, Elaine; Robinson, Thomas; Stowe, John, *Equity Asset Valuation*, John Wiley and Sons, 2007;

Platt, Harlan, *Principles of corporate renewal*, 2nd Edition, University of Michigan, 2004;

Pratt, Shannon, *The lawyer's business valuation handbook: understanding financial statements, Appraisal Reports and Expert Testimony*, American Bar Association, 2000;

Pratt, Shannon, *Valuing a Business: the Analysis and Appraisal of Closely Held Companies*, McGraw-Hill Publishing House, 2000;

Pratt, Shannon; Grabowski, Roger, *Cost of Capital in Litigation: Applications and Examples*, 4th Edition, Wiley, 2010;

Pratt, Shannon; Niculita, Alina, *Valuing a business: the analysis and appraisal of closely held companies*, McGraw-Hill, 2008;

Pryles, Michael, *Lost Profit and Capital Investment*, 2008 (article available at [http://www.arbitration-](http://www.arbitration-icca.org/media/0/12223892171920/damages_in_the_international_arbitration_paper.pdf)

[icca.org/media/0/12223892171920/damages_in_the_international_arbitration_paper.pdf](http://www.arbitration-icca.org/media/0/12223892171920/damages_in_the_international_arbitration_paper.pdf);

Rajarao, V., *Determining Damages in Cross-Border Dispute* (2007), in *Transnational Dispute Management*, Provisional Issue, 3;

Ratner, Ian; Stein, Grant; Weitnauer, John, *Business Valuation and Bankruptcy*, John Wiley & Sons, 2009;

Rayfuse R., Lauterpacht, E. (Editors), *ICSID reports: reports of cases decided under the Convention on the Settlement of Investment Disputes between States and Nationals of Other States, 1965*, 4th Volume, Cambridge University Press, 1997;

Razin, Assaf; Efraim, Sadka, *Foreign direct investment, analysis of aggregate flows*, Princeton University Press, 2007;

Redfern, A.; Hunter, M.; Blackaby, N.; Partasides, C., *Law and Practice of International Commercial Arbitration*, Kluwer Law International, 2004;

Reed, Lucy; Paulsson, Jan; Blackaby, Nigel, *Guide to ICSID arbitration*, Kluwer Law International, 2004;

Reed, Stanley Foster; Reed Lajoux, Alexandra; Nesvold, H. Peter, *The Art of M & A: a Merger, Acquisition, Buyout Guide*, 4th Edition, McGraw-Hill Professional, 2007;

Reilly, John W., *The language of real estate*, 5th Edition, Dearborn Real Estate Education, 2000;

Reilly, Robert F. (CPA), *Intangible Asset Valuation – Cost Approach Methods and Procedures*, Presentation held by to the Business Valuation Association Chicago, Illinois, September 20, 2012, available online at

http://www.willamette.com/pubs/presentations2/reilly_bva_cost_approach.pdf, accessed on 2 April 2012;

Reverre, Stephane, *The complete arbitrage desk-book*, McGraw-Hill, 2001;

Ribeiro, Clarisse (editor), *Investment arbitration and the Energy Charter Treaty*, JurisNet, 2006;

Ripinsky, Sergey; Williams, Kevin, *Damages in International Investment Law*, British Institute of International and Comparative Law, 2008;

Risius, Jeffrey M., *Business valuation: a primer for the legal profession*, published by the American Bar Association, Section of Business Law;

Roark, Bill; Roark, Ryan, *Concise encyclopaedia of real estate business terms*, Haworth Press, 2006;

Rubins, Noah; Kinsella, Stephan, *International risk and dispute resolution. A Practitioner's Guide*, Oceana Publications, 2005;

Sabahi, Borzu, *Compensation and Restitution in Investor-State Arbitration: Principles and Practice*, Oxford International Economic Law, 2011;

Salacuse, Jeswald W., *The Three Laws of International Investment: National, Contractual, and International Frameworks for Foreign Capital*, Oxford University Press, 2014;

Saleh, Joseph, *Analyses for Durability and System Design Lifetime: A Multidisciplinary Approach*, Cambridge University Press, 2007;

Sandford, Scott, *Apples and Oranges - A Comparison*, NASA Ames Research Centre, Mountain View, California, <http://improb.com/airchives/paperair/volume1/v1i3/air-1-3-apples.html>, accessed on 9 Jan. 2013;

Sandner, Philipp, *The Valuation of Intangible Assets*, Springer Fachmedien, 2010;

Saunders, Anthony; Allen, Linda, *Credit Risk Measurement: New Approaches to Value at Risk and Other Paradigms*, John Wiley & Sons, 2002;

Sauvant, Karl; Ortino, Federico, *Improving the international investment law and policy regime: Options for the future*, Background report for the Seminar on Improving the International Investment Regime, Helsinki, 2013, available at <http://formin.finland.fi/public/download.aspx?ID=113259&GUID=%7B1202781B-0D9B-4E9C-9621-FCA4DA87881E%7D>. See also UNCTAD's World Investment Reports available at <http://unctad.org/en/pages/DIAE/World%20Investment%20Report/WIR-Series.aspx>, accessed on 7 November 2014;

Schaefer, Otto Max, *Performance Measures in Value Management: A model approach to explain the CVA and EVA Measures*, Eric Schmidt Verlag, 2002;

Schön, Dennis, *The Relevance of Discounted Cash Flow (DCF) and Economic Value Added (EVA) for the valuation of banks*, GRIN Verlag, 2003;

Schnitzer, Monika, *Expropriation and control rights: a dynamic model of foreign direct investment*, London, Centre for Economic Policy Research, 1998;

Schram, Joseph Jr., *Real Estate Appraisal*, 2nd Edition, Rockwell Publishing Company, 2006;

Schreuer, Christoph, *Commentary on the ICSID Convention*, ICSID Review – Foreign Investment Law Journal, Vol. 11, 1996;

Schreuer, Christoph, *The ICSID Convention: A Commentary on the Convention on the Settlement of Investment Disputes Between States and Nationals of Other States*, Cambridge University Press, 2001;

Schrijver, Nico, *Sovereignty over natural resources: balancing rights and duties*, Cambridge University Press, Cambridge, UK, 1997;

Senechal, Thierry, *Dealing with Uncertainty: Discounted Cash Flow (DCF) Versus Adjusted Present Value (APV)*, Transnational Dispute Management Special Issue on Energy Disputes, vol. 4, issue 3;

Sharpe, William F., *Investors and markets: portfolio choices, asset prices, and investment advice*, Princeton University Press, 2007;

Shihata, Ibrahim F.I., *Legal Treatment of Foreign Investment: the World Bank guidelines*, Martinus Nijhoff Publishers, 1993;

Singh, Ajit, *FDI, globalisation and economic development: towards reforming national and international rules of the game*, Cambridge University Press, 2005;

Smith, Gordon V.; Parr, Russell L., *Intellectual Property: Valuation, Exploitation, and Infringement Damages*, John Wiley & Sons, 2005;

Sornarajah, M., *The international law on foreign investment*, Cambridge University Press, 2004;

St. John, Sutton; Kendall John, David; Gill, Judith, *Russell on arbitration*, 21st Edition, London, Sweet & Maxwell, 1997;

Stauffer, T.R., *Valuation of Assets in International Takings* (1996), 17 Energy Law Journal;

Stowe, John D., Robinson, Thomas; Pinto, Jerald; McLeavey, Dennis, *Equity asset valuation*, John Wiley & Sons, 2007;

Sumner Maine, Henry, *Ancient Law, its connection with the early history of society and its relation to modern ideas*, Henry Holt and Company, 1906, as republished by Liberty Fund;

Tibergien, Mark; Dahl, Owen, *How to Value, Buy, Or Sell a Financial Advisory Practice: A Manual on Mergers, Acquisitions, and Transition Planning*, Bloomberg, 2006;

Usher, Dan, *The Measurement of Capital*, University of Chicago Press, 2008;

United Nations Conference on Trade and Development, *Key terms and concepts in IIAs: a glossary*, UNCTAD Series on Issues in International Investment Agreements, United Nations, 2004;

Van Harten, Gus, *Investment treaty arbitration and public law*, New York-Oxford, Oxford University Press, 2007;

Van Horne, James; Wachowicz, John, *Fundamentals of financial management*, 13th Edition, Prentice Hall, 2009;

Weiler, Todd, *International investment law and arbitration: leading cases from the ICSID, NAFTA, bilateral treaties and customary international law*, Cameron May, 2005;

Welch, Dick; Fremond, Olivier, *The Case-by-Case Approach to Privatization. Techniques and examples*, The International Bank for Reconstruction and Development, World Bank Publishing, 1998;

Wells, Louis, *Double Dipping in Arbitration Awards? An Economist Questions Damages Awarded Karaha Bodas Company in Indonesia*, Arbitration International, 4, 2003;

Wetterstein, Peter (Editor), *Harm to the environment: the right to compensation and assessment of damages*, Oxford, Clarendon, 1996;

Whitney, Daniel, *Economic Analysis of Assembly Systems*, course presentation for the Massachusetts Institute of Technology, available at http://ocw.mit.edu/courses/mechanical-engineering/2-875-mechanical-assembly-and-its-role-in-product-development-fall-2004/lecture-notes/cls21_ecn_anlys4.pdf, as accessed on 28 June 2011;

Williams, Jan; Haka, Susan; Bettner, Mark; Carcello, Joseph, *Financial & Managerial Accounting*, McGraw-Hill Irwin, 2008;

Williams, John Burr, *The Theory of Investment Value*, Harvard University Press, 1938, reprinted by Fraser Publishing, 1997;

Wöss, Herfried; San Román Rivera, Adriana; Spiller, Pablo; Dellepiane, Santiago, *Damages in International Arbitration under Complex Long-term Contracts*, Oxford University Press, 2014;

Zack, Gerard M., *Fair Value Accounting Fraud: New Global Risks and Detection Techniques*, John Wiley & Sons, 2009.

INVESTMENT ARBITRATION CASES AND COURT CASES:

ADC Affiliate Limited and ADC & ADMC Management Limited v. Republic of Hungary, ICSID Case No. ARB/03/16, 2006;

AGIP SpA v. Congo, Award of 30 November 1979, (1993) 1 ICSID Reports;

Alpha Projektholding GmbH v. Ukraine, ICSID Case No. ARB/07/16, Award of November 8, 2010;

Amco Asia Corp. v. Republic of Indonesia, Award of 20 November 1984 (Amco I);

Amco Asia Corp v. Republic of Indonesia, Award of 5 June 1990 (Amco II);

American International Group, Inc. and American Life Insurance Company v. The Islamic Republic of Iran and Central Insurance of Iran (Bimeh Markazi Iran), Award No. 93-2-3, 4 Iran-U.S. C.T.R. 96 (Dec. 19, 1983);

Amoco International Finance Corporation v. The Government of the Islamic Republic of Iran, National Iranian Oil Company, National Petrochemical Company and Kharg Chemical Company Limited, Partial Award No. 310-56-3 (1987);

Aminoil v. Kuwait, 21 International Law Materials (1982) 976, Award of 24 March 1982;

Asian Agricultural Products Ltd. v. Sri Lanka, ICSID Case No. ARB/87/3 (United Kingdom of Great Britain and Northern Ireland/Sri Lanka BIT), Final Award of 27 June 1990;

Autopista Concesionada de Venezuela CA Aucoven v. Bolivarian Republic of Venezuela, ICSID Case No. ARB/00/5;

Azurix Corp. v. Argentine Republic, ICSID Case No. ARB/01/12 (United States/Argentina BIT), Award, 14 July 2006;

Bernardus Henricus Funnekotter and Others v. The Republic of Zimbabwe, ICSID CASE NO. ARB/05/6, Award of 22 April 2009;

BG Group Plc. v. The Republic of Argentina, arbitration under the Arbitration Rules of the United Nations Commission on International Trade Law (the UNCITRAL Rules), Final Award, 24 December 2007;

Biloune and Marine Drive Complex Ltd. v. Ghana Investments Centre and the Government of Ghana, Award on Jurisdiction and Liability, 27 October 1989 (ILR 95, p. 184 *et seq.*) and Award on Damages and Costs, 30 June 1990 (ILR 95, p. 211 *et seq.*);

Bridas S.A.I.P.I.C., Bridas Energy International, Ltd., Intercontinental Oil & Gas Ventures, Ltd. and Bridas Corporation v. Government of Turkmenistan, Concern Balkannebitgazsenagat and State Concern Turkmenneft, ICC Arbitration Case No. 9058/FMS/KGA, Third Partial Award, 2 September 2000;

Cable Television of Nevis, Ltd. v. Federation of St. Kitts and Nevis, ICSID Case No. ARB/95/2, Award (13 January 1997);

CBS Inc. v. Iran, 25 Iran-US Claims Tribunal (1990) 131;

CME Czech Republic B.V. v. Czech Republic, ICSID Final Award, 14 March 2003;

CMS Gas Transmission Company v. The Argentine Republic, ICSID Case No. ARB/01/8, 12 May 2005;

Compañía de Aguas del Aconquija S.A. and Vivendi Universal v. Argentine Republic, ICSID Case No. ARB/97/3 (France/Argentina BIT), Award of 20 August 2007;

Compania del Desarrollo de Santa Elena v. Costa Rica, ICSID Case No. ARB/96/1, 17 February 2000;

Corfu Channel Case (United Kingdom v. Albania), *Merits*, ICJ Reports 1949;

Corfu Channel Case (United Kingdom v. Albania), *Assessment of the Amount of Compensation*, ICJ Reports 1949;

Daniels Midland Company and Tate & Lyle Ingredients Americas, INC. v. The United Mexican States, ICSID Case No. ARB(AF)/04/05;

David P. Stewart, Philips Petroleum Co. Iran. v. Islamic Republic of Iran, The American Journal of International Law, Vol. 85, No. 1 (Jan. 1991);

Delaware Open MRI Radiology Associates, Inc. v. Kessler, 898 A.2d 290, Del. Ch. 2006;

Duke Energy International Peru Investments No. 1, Ltd. v. Republic of Peru, ICSID Case No. ARB/03/28, Decision on Jurisdiction of 1 February 2006;

Duke Energy International Peru Investments No. 1, Ltd. v. Republic of Peru, ICSID Case No. ARB/03/28, Award of 18 August 2008;

Emilio Agustin Maffezini v. The Kingdom of Spain, ICSID Case No. ARB/97/7, Decision on Jurisdiction (25 January 2000), 5 ICSID Reports 396 (2002);

Enron Corporation, Ponderosa Assets v. The Argentine Republic, ICSID Case No. ARB/01/3, 22 May 2007;

Estate of A.M. Collings Henderson, Bank of New York v. Minister of National Revenue (1973);

Estate of Natalie M. Leichter v. Commissioner of Internal Revenue, TC Memo 2003-66, 2003 Tax Ct, Memo Lexis 66 (U.S. Tax Court March 6, 2003);

Factory at Chorzów Case (Germany v. Poland), Jurisdiction, Judgment No. 8, 1927, P.C.I.J., Series A, No. 9, Merits, Judgment No. 13, 1928, P.C.I.J., Series A, No. 17;

Fedax N.V. v. The Republic of Venezuela, Decision on Objections to Jurisdiction, 11 July 1997, ICSID Case No. ARB/96/3;

Feldman v. Mexico, ICSID Case No. ARB (AF)/99/1, Award of 16 December 2002, 42 ILM 625 (2003);

Fisher, Jeffrey; Martin, Robert, *Income Property Appraisal* (Dearborn Financial Publishing, 1991);

Gesoff v. IIC Industries, Inc., 902 A.2d 1130, 2006 Del. Ch. Lexis 91 (Del. Ch. 2006);

Glamis Gold, Ltd. v. United States of America, Award of 8 June 2009 rendered by the ICSID Arbitral Tribunal In accordance with the United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules, under Chapter 11 of the North American Free Trade Agreement;

Himpurna California Energy Ltd. v. PT (Perseo) Perusahaan Listrik Negara (PLN), Final Award of 4 May 1999, Yearbook of Commercial Arbitration (2000) 13;

Horst Reineccius, First Eagle SoGen Funds, Inc., Mr. Pierre Mathieu and La Societe de Concours Hippique De La Chatre v. Bank For International Settlements, Partial Award of 22 November 2002;

Iberdrola Energía S.A. v. Republic of Guatemala, ICSID Case No. ARB/09/5;

INA Corporation v. Iran, 8 Iran-US Claims Tribunal;

Industria Nacional de Alimentos S.A. and Indalsa Perú, S.A. v. The Republic of Peru, ICSID Case No. ARB/03/4 – Annulment Proceeding;

Ioannis Kardassopoulos and Ron Fuchs v. The Republic of Georgia, ICSID Case No. ARB/05/18 and ARB/07/15, Award of March 3, 2010;

James A. Saghi v. Iran, 14 Iran – US CTR (1987) 223;

Joseph Charles Lemire v. Ukraine, ICSID Case No. ARB/06/18, Award of 28 March 2011;

Joy Mining Machinery Limited v. Arab Republic of Egypt, ICSID Case No. ARB/03/11;

Karaha Bodas Company, L.L.C., Plaintiff-Appellee, v. Perusahaan Pertambangan Minyak Dan Gas Bumi Negara et al., Defendants, Perusahaan Pertambangan Minyak Dan Gas Bumi Negara, Defendant-Appellant, No. 02-20550, United States Court of Appeals, Fifth Circuit, June 18, 2003;

Karaha Bodas Company and Perusahaan Pertambangan Minyak dan Gas Bumi Negara v. PT PLN, Final Award in the Arbitration Procedure under the UNCITRAL Arbitration Rules, 18 December 2000;

Klöckner Industrie-Anlagen GmbH and others v. United Republic of Cameroon and Société Cameroundaise des Engrais, S.A., ICSID Case No. ARB/81/2, Decision on Annulment (3 May 1985), 2 ICSID Reports 95, 122 (1994);

Konya Ilgın Elektrik Üretim ve Ticaret Limited Şirketi v. Republic of Turkey ICSID Case No. ARB/02/5 (2007);

Lane v. Cancer Treatment Centres of America Inc., Delaware Court of Chancery, 2004;

LG&E Energy Corp., LG&E Capital Corp., LG&E International, Inc. v. The Argentine Republic, ICSID Case No. ARB/02/1, 25 July 2007;

LIAMCO v. Libya, Award of 12 April 1977, (1982), 62 ILR;

Liberian Eastern Timber Corporation (LETCO) v. Liberia, Award of 31 March 1986;

Libyan American Oil Company (LIAMCO) v. The Libyan Arab Republic, Arbitral Award of 12 April 1977 issued by the Ad Hoc Tribunal (Arbitrator Dr. Sobhi Mahmassani) under the Draft Convention on Arbitral Procedure, ILC 1958, 62 International Law Reports 140;

Malaysian Historical Salvors, SDN, BHD v. The Government of Malaysia (ICSID Case No. ARB/05/10);

May Case (Guatemala v. United States), Award of 16 November 1900, UN Reports of International Arbitral Awards, Volume XV;

Metalclad Corporation v. The United Mexican States, Case No. ARB(AF)/97/1, International Centre For Settlement Of Investment Disputes (Additional Facility), Award of August 30, 2000

Middle East Cement Shipping and Handling Co. S.A. v. Arab Republic of Egypt, ICSID Case No. ARB/99/6;

Mihaly International v. Sri Lanka ICSID Case No. ARB/00/02, Award (15 March 2002), 17 ICSID Review – FILJ 142 (2002);

MTD Equity Sdn. Bhd. & MTD Chile S.A. v. Chile, ICSID Case No. ARB/01/7 (Malaysia/Chile BIT), Final Award, 25 May 2004;

National Grid plc v. The Argentine Republic, UNCITRAL (UK/Argentina BIT), Award, 3 November 2008;

Oil Fields of Texas v. Iran, 12 Iran-US Claims Tribunal (1986);

Oil Fields of Texas v. Iran, Dissenting Opinion Mostafavi, 12 Iran-US Claims Tribunal (1986);

Parkerings-Compagniet AS v. Republic of Lithuania, Arbitration Case No. ARB/05/8, 11 September 2007;

Patrick H. Mitchell v. The Democratic Republic of the Congo, ICSID Case No. ARB/99/7, Award of 9 February 2004;

Phelps Dodge Corp. et al v. The Islamic Republic of Iran, Award of 19 March 1986, 10 Iran-US C.T.R 121;

Phillips Petroleum Company Iran v. The Islamic Republic of Iran, The National Iranian Oil Company, Award No. 425-39-2, 21 Iran-U.S. C.T.R. 79 (29 June 1989);

PSEG Global, Inc., the North American Coal Corporation, and Konya Ingin Elektrik Uretimve Ticaret Limited Sirketi v. Turkey, ICSID Case No. ARB/02/5, Award of 19 January 2007;

Railroad Development Corporation v. Republic of Guatemala, ICSID Case no. ARB/07/23, Award of 29 June 2012;

Re Radiology Associates, Inc., Delaware Court of Chancery, 611 A.2d 485, 490, 1991;

Republic of Ecuador v. Occidental Exploration and Production Company [2005] EWHC 774;

Robert Azinian, Kenneth Davitian, & Ellen Baca v. The United Mexican States, ICSID Additional Facility, Case No. ARB(AF)/97/2, Award of November 1, 1999;

The Rompetrol Group N.V. v. Romania, ICSID Case No. ARB/06/3;

Rumeli Telekom A.S. and Telsim Mobil Telekomikasyon Hizmetleri A.S. v. Republic of Kazakhstan, ICSID Case No. ARB/05/16, Award of July 29, 2008;

Salini Costruttori S.p.A. and Italstrade S.p.A. v. Kingdom of Morocco, ICSID Case No. ARB/00/4;

Saluka Investments BV (The Netherlands) v. The Czech Republic, Partial Award, Arbitration under the UNCITRAL Arbitration Rules 1976, 17 March 2006;

S.D. Myers, Inc. v. Canada, Second Partial Award of 21 October 2002;

Sedco, Inc. v. National Iranian Oil Company & Iran, Iran-US Claims Tribunal, Award of 2 July 1987, 15 Iran-US CTR 23;

Sedco v. IMICO, 21 Iran – US Claims Tribunal (1989) Rep. 31, Award No. 419-128/129-2 of 30 March 1989;

Sedelmeyer v. The Russian Federation, Award of 7 July 1998;

Sempra Energy International v. Argentine Republic, ICSID Case No. ARB/02/16, Award of 28 September 2007;

SGS Société Générale de Surveillance S.A. v. Islamic Republic of Pakistan, ICSID Case No. ARB/01/13, Decision on Jurisdiction (6 August 2003), ASIL International Law in Brief (17 September 2003);

Siemens A.G. v. The Argentine Republic, ICSID Case No. ARB/02/8, Award of 6 February 2007;

Sistem Mühendislik İnşaat Sanayive Ticaret A.Ş. v. Kyrgyz Republic, ICSID Case No. ARB(AF)/06/1;

Société Ouest Africaine de Bétons Industriels (SOABI) v. State of Senegal, ICSID Case No. ARB/82/1, Decision on Jurisdiction (1 August 1984), 2 ICSID Reports 175, 204 (1994);

Sola Tiles Inc. v. Iran, 14 Iran-US Claims Tribunal (1987);

Southern Pacific Properties (Middle East) Ltd. v. Arab Republic of Egypt, ICSID Case No. ARB/ 84/3, Award of 20 May 1992;

Starrett Housing Corporation, Starrett Systems, Inc., Starrett Housing International, Inc. v. The Government of the Islamic Republic of Iran, Bank Omran, Bank Mellat, Bank Markazi, Award No. ITL 32-24-1, 4 Iran-U.S. C.T.R. 122, 157 (19 December 1983);

Suez, Sociedad General de Aguas de Barcelona S.A. and Inter Agua Servicios Integrales del Agua S.A. v. The Argentine Republic, ICSID Case No. ARB/03/17;

Tecnicas Medioambientales Tecmed S.A. v. The United Mexican States, ICSID Case No. ARB (AF)/00/2, Award of 29 May 2003;

Thomas Earl Payne v. Iran, 12 Iran-US Claims Tribunal (1986);

Tza Yap Shum v. Republic of Peru, ICSID Case No. ARB/07/6 (China/Peru BIT), Final Award on Merits from 7 July 2011;

United States v. Cartwright, 411 U. S. 546, 93 S. Ct. 1713, 1716-17, 36 L. Ed. 2d 528, 73-1 U.S. Tax Cas. (CCH) 12, 926 (1973);

U.S. v. Guatemala, Award of 24 July 1930, UN Reports Of International Arbitral Awards, Volume II;

U.S. Inspect Inc. v. McGreevy, 57 Va. Cir. 511, 525-528, 2000 Va. Cir, LEXIS 524 (27 November 2000);

Vacuum Salt Products Ltd. v. Republic of Ghana (Award) ICSID Case No. ARB/92/1, Award (16 February 1994), 4 ICSID Reports 329 (1997);

Waste Management, Inc. v. United Mexican States (Number 2), ICSID Case No. ARB(AF)/00/3 (NAFTA), Final Award, 30 April 2004;

Waguih Elie George Siag and Clorinda Vecchi v. The Arab Republic of Egypt, ICSID Case No. ARB/05/15, Award of 1 June 2009;

Wena Hotels Limited v. Arab republic of Egypt, Case No. ARB/98/4, Award of 8 December 2000.

TREATIES, CONVENTIONS, RESOLUTIONS, OTHER INTERNATIONAL SOURCES:

Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the People's Republic of China concerning the Promotion and Reciprocal Protection of Investments entered into force on 15 May 1986;

Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Republic of Cuba for the Promotion and Protection of Investments entered into force on 11 May 1995;

Treaty between the United States of America and the Russian Federation concerning the Promotion and Reciprocal Protection of Investment signed on 17 June 1992;

Convention on the Settlement of Investment Disputes between States and Nationals of Other States, March 18, 1965;

Energy Charter Treaty;

The International Law Commission's Draft Articles on Responsibility of States for Internationally Wrongful Acts (2001);

International Valuation Standards (2007 and 2013 editions);

North American Free Trade Agreement (1994);

Organisation for Economic Co-operation and Development (OECD) Declaration & Decisions on International Investment and Multinational Enterprises (Includes Guidelines for Multinational Enterprises) (2000);

Regulation (EU) No. 1219/2012 of the European Parliament and of the Council of 12 December 2012 establishing transitional arrangements for bilateral investment agreements between Member States and third countries;

Regulation (EU) No. 912/2014 of the European Parliament and of the Council of 23 July 2014 establishing a framework for managing financial responsibility linked to investor-to-state dispute settlement tribunals established by international agreements to which the European Union is party;

UNIDROIT Principles of International Commercial Contracts (2010);

Uniform Standards of Professional Appraisal Practice (USPAP), 2008-2009 Edition, available at <http://www.appraisalmanagementcompany.net/docs/USPAP.pdf> (accessed on 16 November 2013);

United Nations Commission on International Trade Law Arbitration Rules (1976, as revised in 2010);

United Nations Compensation Commission, Governing Council Decision 9 – Proposition and Conclusions on Compensation for Business Losses: Types of Damages and Their Valuation. S/AC/.26/1992/9 (March 1992);

United Nations Conference on Trade and Development (UNCTAD), World Investment Report 2009: Transnational Corporations, Agricultural Production and Development, available online at http://www.unctad.org/en/docs/wir2009_en.pdf (accessed on 26 August 2014);

United Nations General Assembly Resolution 2205 (XXI) of 17 December 1966 establishing United Nations Commission on International Trade Law (UNCITRAL);

World Bank Guidelines on the Treatment of Foreign Direct Investment (1992).

INTERNET SOURCES:

www.aicpa.org;

www.arbitration-icca.org;

www.asean.fta.govt.nz;

www.biicl.org;

www.caselaw.findlaw.com;

www.cra-arc.gc.ca;

www.eifrs.iasb.org;

www.en.wikipedia.org;

www.encharter.org;

www.go-iba.org;

www.hmrc.gov.uk;

www.ibanet.org;

www.ibbotson.com;

www.icj-cij.org;

www.icsid.worldbank.org;

www.ifac.org;

www.ifrs.org;
www.improb.com;
www.incometaxindia.gov.in;
www.internationalarbitrationcaselaw.com;
www.investmentpolicyhub.unctad.org;
www.investopedia.com;
www.irs.gov;
www.italaw.com;
www.iusct.net;
www.mergermarket.com;
www.miga.org;
www.naftanow.org;
www.ocw.mit.edu;
www.oecd.org;
www.opic.gov;
www.pages.stern.nyu.edu;
www.pca-cpa.org;
www.pcaobus.org;
www.pwc.com;
www.reuters.com;
www.standards.ivsonline.org;
www.un.org;
www.uncitral.org;
www.unctad.org;

www.unidroit.org;

www.voa.gov.uk.